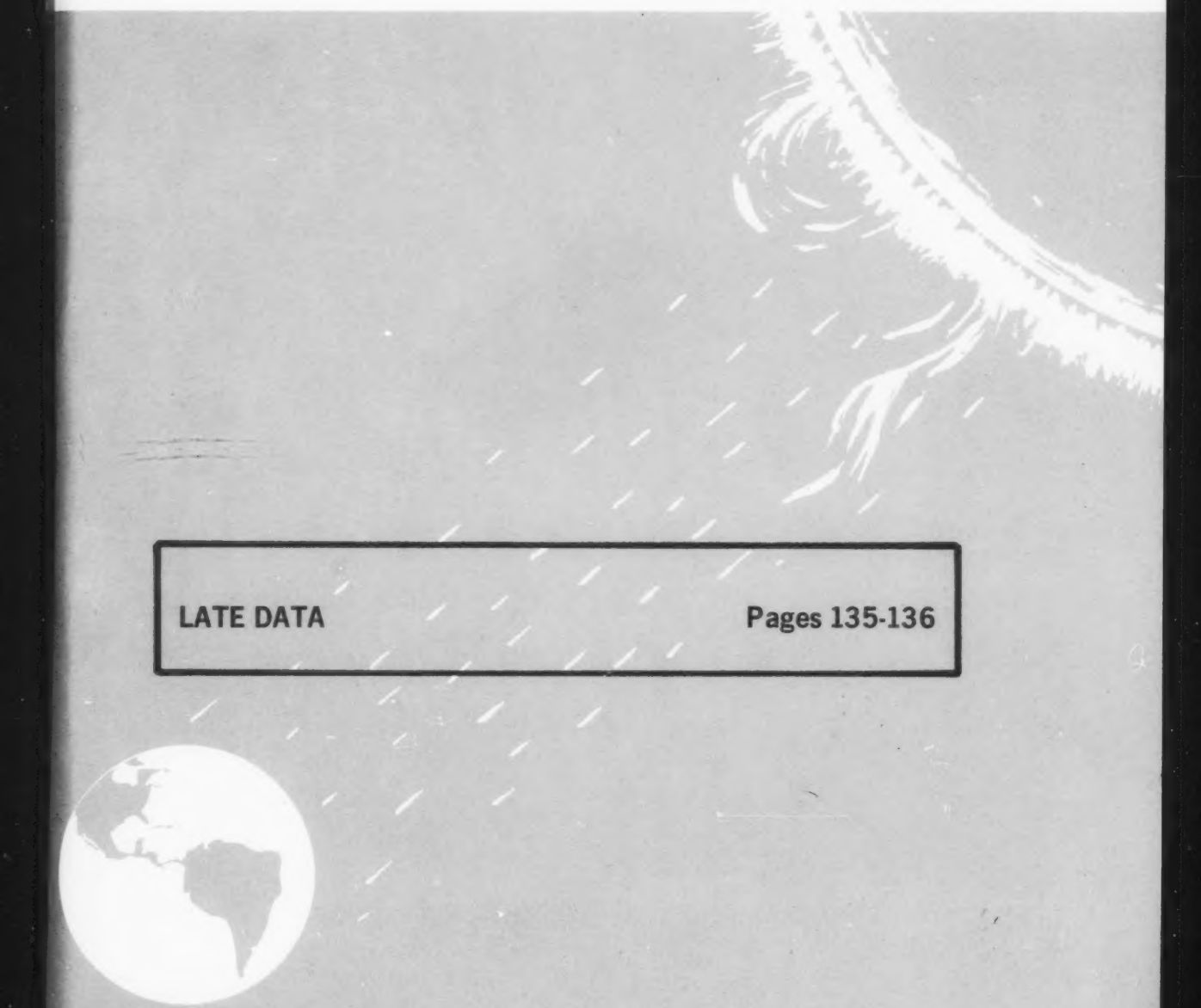
JANUARY 1983 NUMBER 461 -- Part I

Solar-Geophysical Data prompt reports

Data for December 1982, November 1982 & Late Data
Explanation of Data Reports Issued as Number 450 (Supplement) February 1982



LATE DATA **Pages 135-136**

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / NATIONAL GEOPHYSICAL DATA CENTER

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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 461 JANUARY 1983

DATA FOR
DECEMBER 1982
NOVEMBER 1982

Michael A. Chinnery, Director
NATIONAL GEOPHYSICAL DATA CENTER
BOULDER, COLORADO

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SOLAR-GEOPHYSICAL DATA

No. 461

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

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83 5 503AA5 2 013 1 SN 2360

DETAILED COVERAGE FOR 1981-82 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1981 Dec	1982 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A.	SOLAR AND INTERPLANETARY PHENOMENA													
A.1	Sunspot Drawings	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	458A 48	459A 44	460A 52	461A 58	
A.2aa	International Provisional Relative Sunspot Numbers Ri	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9	458A 9	459A 9	460A 11	461A 11
A.2c	American Relative Sunspot Numbers Ra	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9	458A 9	459A 9	460A 11	461A 11
A.3a	Mt. Wilson Magnetograms	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	458A 48	459A 44	460A 52	461A 58	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	450A104	451A120	452A106	453A102	454A104	455A126	457A166	457A112	458A110	459A105	460A 83	461A 88	
A.3c	Kitt Peak Magnetograms	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	458A 48	459A 44	460A 52	461A 58	
A.3d	Mean Solar Magnetic Field (Stanford)	449A 38	450A 34	451A 50	452A 42	453A 32	454A 32	455A 56	456A 48	457A 42	458A 38	459A 36	460A 44	461A 52
A.3e	Stanford Magnetograms	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	458A 48	459A 44	460A 52	461A 58	
A.4	H-alpha Filtergrams	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	458A 48	459A 44	460A 52	461A 58	
A.5	Calcium Plage Drawings - Mt. Wilson or Big Bear	449A 50	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	458A 48	459A 44	460A 52	461A 58
A.5a	Calcium Plage (Mt. Wilson or Big Bear) and Sunspot Regions	450A104	451A120	452A106	453A102	454A104	455A126	457A166	457A112	458A110	---	---	---	
A.5b	Mt. Wilson or Big Bear Daily Calcium Plage Indices	450A118	451A135	452A118	453A113	454A117	455A138	457A176	457A122	458A119	---	---	---	
A.6	H-alpha Synoptic Charts	450A 38	451A 54	452A 46	453A 36	454A 36	456A 52	456A 53	457A 46	458A 42	459A 40	460A 47	461A 54	
A.6b	Synoptic Chart and Active Regions (Paris)	455B 37	458B 43	459B 91	460B154	460B155								
A.6c	Stanford Solar Magnetic Field Synoptic Charts	450A 39	451A 55	452A 47	453A 37	454A 38	455A 61	456A 55	458A 43	458A 44	460A 48	460A 49	461A 55	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	450A 40	451A 56	452A 48	453A 38	454A 40	455A 62	456A 56	457A 48	458A 45	459A 42	460A 50	461A 56	
A.6e	Mass Ejections from the Sun	454B 39	459B 32	456B 83	457B 73	458B 40	459B 37	460B113	461B 94					
A.7f	Helium D3 Chromosphere (Big Bear)	---	---	---	---	---	---	---	---	---	---	---	---	---
A.7g	Helium Synoptic Maps (KPNO)	---	451A 57	452A 49	454A144	454A 42	455A 63	456A 56	457A 49	458A 47	459A 43	460A 51	461A 57	
A.7h	Coronal Line Emission (Sac Peak)	450A 42	451A 58	452A 50	453A 40	454A 44	455A 64	456A 58	457A 50	458A 48	459A 44	460A 52	461A 58	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9	458A 9	459A 9	460A 11	461A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9	458A 9	459A 9	460A 11	461A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	449A 11	450A 11	451A 11	452A 11	453A 11	454A 9	455A 11	456A 9	457A 9	458A 9	459A 9	460A 11	461A 11
A.10a	169 MHz - Interferometric Observations (Nancay)	449A 25	450A 23	452A162	452A 28	455A162	454A 21	455A 30			458A 25	459A 26	460A 28	461A 32
A.10c	21 cm East-West Solar Scans (Fleurs)	449A 28	450A 26	451A 33	452A 31	---	---	455A 33	456A 30	457A 29	458A 28	459A 28	460A 31	461A 35
A.10d	43 cm East-West Solar Scans (Fleurs)	449A 29	450A 27	451A 34	452A 32	---	---	---	456A 30	457A 30	458A 29	459A 29	460A 32	461A 36
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	449A 27	450A 25	451A 32	452A 30	453A 25	454A 23	455A 32	456A 29	457A 28	458A 27	459A 27	460A 30	461A 34
A.10f	3 cm East-West Solar Scans (Toyokawa)	449A 26	450A 24	451A 31	452A 29	453A 24	454A 22	455A 31	456A 28	457A 27	458A 26		460A 29	461A 33
A.10g	8 cm East-West Solar Scans (Toyokawa)	---	---	---	---	---	---	---	---	---	---	---	---	---
A.11g	Solar X-ray (SMS/GOES) (graphs)	454B 29	455B 26	456B 78	457B 67	458B 35	459B 31	461B 98	461B 88					
A.12e	Energetic Solar Particles (IMP H & J) 1980-81	451A166	451A169	451A 45	---	---	---	---	---	---	---	---	---	---
A.13d	Solar Wind from IPS Measurements	457B124	457B125	457B126	457B 66	459B 34								
A.13e	Solar Plasma (IMP H & J)	449A 35	450A 31	451A 51	452A 43	453A 33	454A 33	455A 57	456A 45	457A 39	458A 39	459A 37	---	---
A.13f	Solar Wind (Pioneer 12 (Venus))	---	452A163	452A123	455A175	455A175	455A142	---	457A129	458A124	459A130	461A136		
A.17	Interplanetary Magnetic Field (Pioneer 12)	449A 36	450A 32	451A 48	452A 40	453A 30	454A 30	455A 54	456A 46	457A 40	458A 36	459A 34	460A 42	461A 50
A.17c	Inferred IP Magnetic Field													
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA													
B.52	Graphs of Transmission Frequency Range	450A144	451A162	452A158	453A144	454A140	455A158	456A156	457A162	458A148	459A156	460A128	461A132	
B.53	Quality Figures Based on Frequency Ranges	450A143	451A161	452A160	453A143	454A142	455A157	456A158	457A161	458A150	459A158	460A130	461A131	
C.	FLARE-ASSOCIATED EVENTS													
C.1a	Optical Observations Flares	449A 16	450A 16	451A 16	452A 16	453A 16	454A 14	455A 16	456A 14	457A 14	458A 14	459A 14	460A 16	461A 16
C.1ba	Optical Observations Flares (Standardized Data) 1980						457B 76	459B 39	460B116					
C.1d	Flare Patrol Observations	449A 24	450A 22	451A 30	452A 27	453A 23	454A 20	455A 29	456A 27	457A 26	458A 24	459A 25	460A 27	461A 31
C.1d	Flare Patrol Observations 1980						457B115	459B 87	460B151					
C.1e	Flare Indices (by day) 1980						457B114	459B 86	460B150					
C.1f	Flare Indices (by Region) 1980													
C.3	Solar Radio Waves - Outstanding Occurrences*	454B 4	455B 4	456B 4	457B 4	458B 4	459B 4	460B 4	460B 4					
	Solar Radio Waves - Fixed Frequencies - Selected	449A 30	450A 28	451A 35	452A 33	453A 26	454A 24	455A 34	456A 31	457A 31	458A 30	459A 30	460A 33	461A 37
C.4a	Solar Radio Spectral Obs. (Fort Davis)	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	458A125	459A131	460A106	461A109	
C.4d	Solar Radio Spectral Obs. (Culgoora)	450A122	451A140	452A124	455A165	455A170	455A143	456A124	457A130	458A125	459A131	460A106	461A109	
C.4e	Solar Radio Spectral Obs. (Weissenau)	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	458A125	459A131	460A106	461A109	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	458A125	459A131	460A106	461A109	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	450A122												
C.4i	Solar Radio Spectral Obs. (Bleien)	---	451A140	452A124	454A145								461A109	
C.4j	Solar Radio Spectral Obs. (Manila)													
C.4k	Solar Radio Spectral Obs. (Learmonth)	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	458A125	459A131	460A106	461A109	
C.4l	Solar Radio Spectral Obs. (Palehua)	450A122	451A140	452A124	453A118	454A121	455A143	456A124	457A130	458A125	459A131	460A106	461A109	
C.5e	Solar X-ray (SMS/GOES) (graphs)	454B 29	455B 26	456B 78	457B 67	458B 35	459B 31	461B 98	461B 88					
C.6	Sudden Ionospheric Disturbances	450A119	451A136	452A119	453A114	454A118	455A139	456A118	457A123	458A120	459A126	460A102	461A103	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA													
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	450A138	451A151	452A152	453A136	454A134	455A153	456A149	457A154	459A162	459A150	461A136	461A126	
D.1ba	27-day Chart of Kp Indices	450A140	451A153	452A154	453A138	454A136	455A155	456A151	457A156	458A144	459A152	460A125	461A128	
D.1c	27-day Chart of C9	451A158												
D.1ca	aa graph 1868 - present													
D.1d	Principal Magnetic Storms	450A141	451A159	452A155	453A141	454A139	455A156	456A154	457A159	458A147	459A153	460A126	461A129	
D.1e	Reduced Magnetograms													
D.1f	Sudden Commencement and Solar Flare Effects	450A142	451A160	452A157	453A142	456A160		456A155	457A160	459A164	459A155	460A127	461A130	
D.1g	Equatorial Indices Dst	451A175	452A165	453A148	453A140	454A138	456A160	456A153	457A158	458A146	460A135			
D.1h	Geomagnetic Substorm Log (Boulder)	449A 39	450A 35	451A 52	452A 44	453A 34	454A 34	455A 58	456A 49	457A 43	458A 40	459A 38	460A 41	461A 49
F.	COSMIC RAYS													
F.1a	Cosmic Ray Neutron Counts (Deep River)	450A134	451A151	452A151	453A135	455A177	455A152	456A148	457A153	459A160	459A149	460A119		
F.1b	Cosmic Ray Neutron Counts (Climax)	451A172	454A150	454A150	454A150	454A131	457A176	457A178						
F.1e	Cosmic Ray Neutron Counts (Alert)	450A134	451A151	452A151	453A135	455A177	455A152	456A148	457A153	459A160	459A149	460A119		
F.1h	Cosmic Ray Neutron Counts (Thule)	450A134	451A151	452A151	453A135	454A131	455A152	456A148	457A153	458A143	459A149	460A119	461A123	
F.1i	Cosmic Ray Neutron Counts (Kiel)	450A134	451A151	452A151	453A135	454A131	457A178	457A178	457A153	458A143	459A149	460A119	461A123	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	450A134	451A151	452A151	453A135	454A131	457A178	457A178	457A153	458A143	459A149	460A119	461A123	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	451A172	454A150	454A150	454A150	457A176	457A178							
M.	MISCELLANEOUS													
M.60	IUWDS Alert Decisions	449A 5	450A 5	451A 5	452A 5	453A 5	454A 4	455A 5	456A 4	457A 4	458A 4	459A 4	460A 5	461A 4

Notes:

"450A 42" listed under 1981 Dec means that the sunspot drawings for Dec 1981 were contained in Solar-Geophysical Data Number 450 - Part I, beginning on page 42.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

DECEMBER 1982 DATA

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ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
PRESTO MESSAGES(THE RAPID REPORT OF MAJOR EVENTS)

07 DECEMBER 1982 SYDNEY 07/0411Z SSC OBSERVED 12 GAMMA 0330Z
08 DECEMBER 1982 LEARMONTH 08/0000Z TENFLARE 2000 FLUX UNITS 07/2341Z
08 DECEMBER 1982 CULGOORA 08/0030Z TYPE IV RADIO EMISSION 20-8000 MHZ IMPORTANCE 3
08 DECEMBER 1982 CULGOORA 08/0030Z TENFLARE 5100 FLUX UNITS 07/2400Z
08 DECEMBER 1982 BOULDER 08/0120Z XRAY EVENT X2/2B S14W81 07/2341Z DURATION 10 MINUTES, SUSPECTED PROTON FLARE, MAGSTORM EXPECTED DUE TO FLARE.
08 DECEMBER 1982 BOULDER 08/0455Z TENFLARE 1360 FLUX UNITS 07/2337Z DURATION 10 MINUTES
08 DECEMBER 1982 BOULDER 08/0455Z TENFLARE 5100 FLUX UNITS 07/2400Z DURATION 1 MINUTE
08 DECEMBER 1982 BOULDER 08/0455Z POLARCAP ABSORPTION BEGAN 08/0045Z 1.4 DB
08 DECEMBER 1982 BOULDER 08/0455Z PROTON EVENT BEGAN AT 08/0010Z 10 PROTONS/CM2/SE/STER AT >= 10MEV
08 DECEMBER 1982 TOYOKAWA 08/0120Z TENFLARE 8000 FLUX UNITS 07/2326Z IN PROGRESS
08 DECEMBER 1982 BOULDER 08/1635Z TENFLARE 330 FLUX UNITS 08/1323Z DURATION 120 MINUTES
08 DECEMBER 1982 BOULDER 08/1635Z TENFLARE 1471 FLUX UNITS 08/1421Z DURATION 23 MINUTES
09 DECEMBER 1982 SYDNEY 09/2202Z TENFLARE 345 FLUX UNITS 09/2146Z DURATION 24 MINUTES
09 DECEMBER 1982 BOULDER 09/2214Z TENFLARE 300 FLUX UNITS 09/2144Z DURATION 7 MINUTES
10 DECEMBER 1982 TOYOKAWA 10/0525Z TENFLARE 140 FLUX UNITS 10/0344Z IN PROGRESS
11 DECEMBER 1982 TOYOKAWA 11/0535Z TENFLARE 360 FLUX UNITS 11/0438Z DURATION 40 MINUTES
11 DECEMBER 1092 BOULDER 11/0505Z XRAY EVENT M9/2B S10E79 11/0406Z DURATION 23 MINUTES
11 DECEMBER 1982 BOULDER 11/0505Z TENFLARE 280 FLUX UNITS 11/0439Z DURATION 7 MINUTES
12 DECEMBER 1982 TOYOKAWA 12/0130Z TENFLARE 100 FLUX UNITS 11/0544Z DURATION 4 MINUTES
13 DECEMBER 1982 TOYOKAWA 13/0415Z TENFLARE 320 FLUX UNITS 13/0320Z DURATION 2 MINUTES
13 DECEMBER 1982 BOULDER 13/1400Z TENFLARE 220 FLUX UNITS 13/0324Z DURATION 16 MINUTES
13 DECEMBER 1982 BOULDER 13/1400Z XRAY EVENT M8/2B S09E51 13/0320Z DURATION 50 MINUTES
15 DECEMBER 1982 BOULDER 15/0210Z XRAY EVENT X1/2B S10E24 15/0157Z DURATION 11 MINUTES
15 DECEMBER 1982 BOULDER 15/0210Z TENFLARE 7300 FLUX UNITS 15/0158Z DURATION 18 MINUTES
15 DECEMBER 1982 TOYOKAWA 15/0225Z TENFLARE 4240 FLUX UNITS 15/0156Z DURATION 25 MINUTES
15 DECEMBER 1982 SYDNEY 15/0245Z SOFLARE LEARMONTH 2B S10E24 15/0159Z
15 DECEMBER 1982 SYDNEY 15/0245Z TENFLARE LEARMONTH 7530 FLUX UNITS
15 DECEMBER 1982 SYDNEY 15/0245Z TYPE IV RADIO EMISSION CULGOORA IN PROGRESS 15-8000 MHZ
15 DECEMBER 1982 SYDNEY 15/0245Z MAGNETIC CROCHET OBSERVED SYDNEY 15/0159Z
15 DECEMBER 1982 BOULDER 15/1410Z STRONG MAGSTORM EXPECTED 16/1200Z
15 DECEMBER 1982 BOULDER 15/1715Z XRAY EVENT X5/2B S10E15 15/1620Z DURATION 18 MINUTES
15 DECEMBER 1982 BOULDER 15/1715Z TENFLARE 840 FLUX UNITS 15/1628Z DURATION 14 MINUTES
16 DECEMBER 1982 BOULDER 16/1415Z TENFLARE 380 FLUX UNITS 16/1003Z DURATION 6 MINUTES
16 DECEMBER 1982 BOULDER 16/1425Z XRAY EVENT X1/2B S06W10 16/1452Z IN PROGRESS
16 DECEMBER 1982 BOULDER 16/1425Z TENFLARE 600 FLUX UNITS 16/1455Z IN PROGRESS
16 DECEMBER 1982 BOULDER 16/1550Z TENFLARE 480 FLUX UNITS 16/1418Z DURATION 8 MINUTES
17 DECEMBER 1982 BOULDER 17/1450Z STRONG MAGSTORM IN PROGRESS 17/1400Z
17 DECEMBER 1982 TOYOKAWA 17/0338Z TENFLARE 120 FLUX UNITS 17/0144Z DURATION 20 MINUTES
17 DECEMBER 1982 BOULDER 17/1850Z XRAY EVENT X10/3B S08W21 17/1821Z DURATION 22 MINUTES
17 DECEMBER 1982 BOULDER 17/1850Z TENFLARE 1900 FLUX UNITS 17/1849Z DURATION 15 MINUTES
17 DECEMBER 1982 BOULDER 17/2130Z PROTON EVENT BEGAN 17/1945Z 30 PROTONS/CM2/SEC/STER>= 10 MEV AT 17/2131Z
18 DECEMBER 1982 BOULDER 18/1420Z XRAY EVENT X1/1B S10W20 18/0818Z DURATION 23 MINUTES
18 DECEMBER 1982 BOULDER 18/1520Z XRAY EVENT X1/2B S12W20 IN PROGRESS
18 DECEMBER 1982 BOULDER 18/1520Z TENFLARE 240 FLUX UNITS 18/1504Z IN PROGRESS
19 DECEMBER 1982 BOULDER 19/1920Z PROTON EVENT 72 PROTONS/CM2/SEC/STER >= 10 MEV MAXIMUM AT 19/2350Z
20 DECEMBER 1982 KAKIOKA 19/0500Z MAGSTORM 19/0253Z
22 DECEMBER 1982 BOULDER 22/1415Z TENFLARE 900 FLUX UNITS 22/0824Z DURATION 12 MINUTES
22 DECEMBER 1982 BOULDER 22/1415Z XRAY EVENT X2/SB S09W82 22/0824Z DURATION 13 MINUTES
25 DECEMBER 1982 BOULDER 25/1410Z XRAY EVENT X2/1B S17E31 25/0716Z DURATION 85 MINUTES STRONG TYPE IV
25 DECEMBER 1982 BOULDER 25/1410Z TENFLARE 860 FLUX UNITS 25/0737Z DURATION 45 MINUTES
26 DECEMBER 1982 TOYOKAWA 26/0119Z TENFLARE 240 FLUX UNITS 26/0011Z DURATION 5 MINUTES
26 DECEMBER 1982 BOULDER 26/0135Z TENFLARE 190 FLUX UNITS 26/0011Z DURATION 5 MINUTES
27 DECEMBER 1982 BOULDER 27/0623Z PROTON EVENT BEGAN 27/0600Z WITH MAXIMUM OF 170 PROTON/CM2/SEC/STER>= 10 MEV AT 27/1145Z
29 DECEMBER 1982 BOULDER 29/1415Z XRAY EVENT X1/2B S13W12 29/0640Z DURATION 10 MINUTES
29 DECEMBER 1982 BOULDER 29/1415Z TENFLARE 670 FLUX UNTIS 29/0644Z DURATION 9 MINUTES
30 DECEMBER 1982 TOYOKAWA 30/0020Z TENFLARE 680 FLUX UNITS 29/0643Z DURATION 7 MINUTES

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NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
335	01	30	120	170	015	S06W95	0	0	0		01	S06W95	Q	SOLQUIET
						N11W89	0	0	0			N11W89	Q	MAGNIL
						S24W57	0	0	0			S24W57	Q	
						S15E02	5	0	0			S15E02	E	
						S11E21	6	0	0			S11E21	E	
						N10E71	1	0	0			N10E71	Q	
336	02	01	108	173	003	N17W71	0	0	0		02	N17W71	Q	SOLQUIET
						S14W10	3	0	0			S14W10	E	MAGQUIET
						S11E08	2	0	0			S11E08	E	
						N09E59	0	0	0			N09E59	E	
337	03	02	148	171	002	S14W25	2	0	0		03	S14W25	E	SOLQUIET
						S11W06	7	0	0			S11W06	E	MAGQUIET
						N14E03	0	0	0			N14E03	Q	
						N08E38	0	0	0			N08E38	Q	
						N12E52	8	1	0			N12E52	E	
						N06E61	4	1	0			N05E61	Q	
338	04	03	163	187	010	S15W37	4	0	0		04	S15W37	E	SOLQUIET
						S10W19	5	0	0			S10W19	E	MAGQUIET
						N14W10	1	0	0			N14W10	Q	
						N09E31	0	0	0			N09E31	Q	
						N12E37	2	0	0			N12E37	A	
						N08E48	5	3	0			N08E48	A	
339	05	04	205	200	010	S14W49	8	0	0		05	S14W49	E	SOLALERT
						S10W32	6	0	0			S10W32	E	05/07
						N13W23	2	0	0			N13W23	Q	MAGQUIET
						N03E04	0	0	0			N03E04	Q	
						N09E13	0	0	0			N09E13	Q	
						N12E23	1	0	0			N12E23	A	
						N07E33	12	1	0			N07E33	A	
						S09E67	0	0	0			S09E67	Q	
340	06	05	243	216	010	S15W62	4	0	0		06	S15W62	Q	SOLALERT
						S11W45	3	0	0			S11W45	Q	06/07
						N14W37	2	0	0			N14W37	Q	MAGQUIET
						S22W21	0	0	0			S22W21	Q	
						S09W15	0	0	0			S09W15	Q	
						N04W09	0	0	0			N04W09	Q	
						N08E01	1	0	0			N08E01	Q	
						N12E09	3	0	0			N12E09	A	
						N07E19	7	1	0			N07E19	A	
						S09E52	0	0	0			N07E52	Q	
						S10E69	2	0	0			S10E69	Q	
341	07	06	250	217	003	S15W76	2	0	0		07	S15W76	A	SOLALERT
						S11W59	1	0	0			S11W59	Q	07/09
						N14W50	3	0	0			N14W50	Q	MAGQUIET
						S23W34	8	0	0			S23W34	Q	
						N08W15	1	0	0			N08W15	Q	
						N13W04	4	0	0			N13W04	A	
						N08E05	7	0	0			N08E05	A	
						S09E29	2	0	0			S09E29	Q	
						S08E36	2	0	0			S08E36	Q	
						S09E55	0	0	0			S09E36	A	
						S05E71	0	0	0			S05E71	Q	
						S17E74	1	0	0			S05E74	Q	
342	08	07	234	252	023	S12W72	1	0	0	PRESTO SSC 07/0330Z. TENFLARE	08	S12W72	Q	SOLALERT
						N14W65	9	0	0	8000 FLUX UNITS 07/2326Z IN		N14W65	Q	08/XX
						S23W48	3	1	0	PROGRESS. TYPE IV RADIO EMIS-		S23W48	Q	MAGALERT
						S09W43	1	0	0	SION 20-8000MHZ IMPORTANCE 3.		S09W43	E	MINOR 08
						N08W27	0	0	0	TENFLARE 5100 FLUX UNITS 07/		N08W27	Q	
						N12W18	1	0	0	2400Z DURATION 1 MINUTE. XRAY		N12W18	Q	
						N09W07	5	1	0	EVENT X2/SB SUSPECTED PROTON		N09W07	A	
						S09E23	0	0	0	FLARE 07/2258Z DURATION 60		S09E23	Q	
						S09E43	3	0	0	MINUTES.		S09E43	Q	

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NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
						N05E56	0	0	0			N05E56	Q	
						S16E63	2	1	0			S16E63	Q	
						N11E79	3	0	0			N11E79	Q	
343	09	08	275	241	022	N16W78	0	0	0	PRESTO TENFLARE 1360 FLUX	09	N16W78	Q	SOLALERT
						N14W65	0	0	0	UNITS 07/2337Z DURATION 10		N14W65	Q	09/11
						S23W60	2	0	0	MINUTES. TENFLARE 5100 FLUX		S23W60	Q	MAGNIL 09
						S09W56	0	0	0	UNITS 07/2400Z DURATION 1		S09W56	Q	MAGALERT
						N08W40	0	0	0	MINUTE. POLCAP OBSORPTION		N08W40	A	10/11
						N12W36	1	0	0	BEGAN AT 08/0045Z 1.4 DB.		N12W36	Q	
						N08W21	2	0	0	PROTON EVENT BEGAN 08/0010Z		N08W21	Q	
						S09E10	0	0	0	10 PROTONS/CM2/SEC/STER AT		S09E10	Q	
						S10E30	1	0	0	>=10 MEV. TENFLARE 330 FLUX		S10E30	Q	
						S06E43	0	0	0	UNITS 08/1323Z DURATION 120		S06E43	Q	
						S17E51	5	0	0	MINUTES. TENFLARE 1471 FLUX		S17E51	Q	
						N11E64	7	3	0	UNITS 08/1421Z DURATION 23 MINUTES.		N11E64	Q	
344	10	09	274	243	017	N15W81	1	0	0	PRESTO TENFLARE 345 FLUX	10	N15W81	Q	SOLALERT
						S23W73	1	0	0	UNITS 09/2139Z DURATION 24		S23W73	Q	10/11
						S08W70	0	0	0	MINUTES.		S08W70	Q	MAGALERT
						N12W50	0	0	0			N12W50	Q	10/11
						N08W35	7	5	0			N08W35	A	
						S09W02	0	0	0			S08W02	Q	
						S08E14	1	0	0			S08E14	Q	
						S05E29	0	0	0			S05E29	Q	
						S16E37	1	0	0			S16E37	Q	
						N12E53	10	3	0			N12E53	E	
						S08E69	0	0	0			S08E69	Q	
						S06E83	0	0	0			S06E83	Q	
345	11	10	218	279	040	N12W64	0	0	0	PRESTO THE PROTON EVENT BEGAN	11	N12W64	Q	SOLALERT
						N07W50	9	7	0	08/0010Z WITH MAXIMUM OF 1000		N07W50	A	11/13
						S09E02	2	0	0	PROTONS/CM2/SEC/STER >=10 MEV		S09E02	Q	MAGALERT 11
						S05E17	0	0	0	AT 08/1000Z AND NEAR THRESHOLD		S05E17	Q	
						S15E24	6	0	0	OF 10 PROTONS AT 11/0200Z.PCA		S15E24	Q	
						N12E39	5	2	0	BEGAN 08/0045Z WITH MAXIMUM		N12E39	A	
						S07E51	1	0	0	ABSORPTION OF 10 DB AT 08/1200		S07E51	Q	
						S07E66	2	0	0	AND END AT 10/0700Z.		S07E66	Q	
346	12	11	242	272	016	N10W77	2	0	0	PRESTO XRAY EVENT M9/2B S10E78	12	N10W77	Q	SOLALERT
						N07W63	9	1	0	11/0436Z DURATION 23 MINUTES.		N07W63	A	12/14
						S09W11	1	0	0	TENFLARE 360 FLUX UNITS		S09W11	Q	MAGNIL
						S05E05	0	0	0	11/0438Z DURATION 40 MINUTES		S05E05	Q	
						S16E11	7	1	0			S16E11	E	
						N12E25	7	0	0			N12E25	A	
						S07E37	1	0	0			S07E37	Q	
						S06E54	1	0	0			S06E54	A	
						S09E66	1	1	0			S09E66	Q	
347	13	12	261	259	014	N08W77	6	1	0		13	N08W77	A	SOLALERT
						S09W23	1	0	0			S09W23	Q	13/14
						S05W11	0	0	0			S05W11	Q	MAGQUIET
						S04W03	0	0	0			S04W03	Q	
						S16W01	2	0	0			S16W01	Q	
						N11E12	7	0	0			N11E12	A	
						S07E23	0	0	0			S07E23	Q	
						S07E41	0	0	0			S07E41	E	
						S11E52	2	0	0			S11E52	A	
348	14	13	246	247	008	S11W35	2	0	0	PRESTO TENFLARE 320 FLUX	14	S11W35	Q	SOLALERT
						S13W24	0	0	0	UNITS 13/0320Z DURATION 2		S13W24	Q	14/16
						S06W22	1	0	0	MINUTES. XRAY EVENT M8/2B		S06W22	Q	MAGQUIET
						S17W15	1	0	0	S09E51 13/0320Z. TENFLARE		S17W15	Q	
						S05W15	0	0	0	220 FLUX UNITS 13/0324Z		S05W15	Q	
						N11W01	2	0	0	DURATION 16 MINUTES.		N11W01	E	
						S08E12	1	0	0			S08E12	Q	
						S06E28	2	0	0			S06E28	Q	
						S11E39	8	3	0			S11E39	A	

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NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
349	15	14	240	243	006	S11W49	1	0	0		15	S11W49	Q	SOLALERT
						S13W39	0	0	0			S13W39	Q	15/17
						S06W38	0	0	0			S06W38	Q	MAGQUIET
						S16W29	6	0	0			S16W29	E	
						N11W14	3	0	0			N11W14	E	
						S07W01	1	0	0			S07W01	Q	
						S07E13	0	0	0			S07E13	Q	
						S11E25	8	0	0			S11E25	E	
						S05E82	0	0	0			S05E82	Q	
350	16	15	196	236	011	S13W58	3	0	0	PRESTO XRAY EVENT X11/2B	16	S13W58	Q	SOLALERT
						S06W50	1	0	0	15/0157Z DURATION 11 MINUTES		S06W50	Q	16/18
						S17W42	2	0	0	TENFLARE 7300 FLUX UNITS		S17W42	E	MAGALERT
						N10W28	4	0	0	15/0158Z DURATION 18 MINUTES		N10W28	E	16/17
						S06W13	1	0	0	TYPE IV RADIO EMISSION IN		S06W13	Q	
						S07W00	1	2	0	PROGRESS 15-8000MHZ 15/0245Z		S07W00	A	
						S11E11	5	1	2	MAGNETIC CROCHET OBSERVED AT		S11E11	A	
						S05E67	1	0	0	SYDNEY 15/0159Z XRAY EVENT		S05E67	E	
						N10E74	0	0	0	X5/2B S10E15 15/1620Z DURATION 18 MINUTES.TENFLARE 840 FLUX UNITS 15/1628Z DURATION 14 MINUTES.		N10E74	Q	
351	17	16	186	214	016	S12W71	0	0	0	PRESTO TENFLARE 380 FLUX UNITS	17	S12W71	Q	SOLALERT
						S06W63	0	0	0	16/1003Z DURATION 6 MINUTES		S06W63	Q	17/19
						S16W55	6	1	0	TENFLARE 480 FLUX UNITS 16/		S16W55	Q	MAGALERT
						N11W40	4	0	0	1418Z DURATION 8 MINUTES.		N11W40	E	17/18
						S06W26	1	0	0	XRAY EVENT X1/2B S06W10		S06W26	Q	
						S07W12	4	0	1	16/1452Z DURATION 18 MINUTES		S07W12	A	
						S12W01	9	0	0	TENFLARE 600 FLUX UNITS		S12W01	A	
						S06E54	0	0	0	16/1455Z DURATION 16 MINUTES.		S06E54	Q	
						N10E61	0	0	0			N10E61	Q	
352	18	17	158	202	039	S16W68	4	2	0	PRESTO 120 FLUX UNITS 17/0144Z	18	S16W68	A	SOLALERT
						N10W51	2	0	0	DURATION 20 MINUTES. STRONG		N10W51	E	18/23
						S06W26	2	0	1	MAGSTORM IN PROGRESS 17/1400Z		S06W26	A	MAGALERT
						S12W14	6	4	0	XRAY EVENT X10/3B S08W21		S12W14	A	18/20
						S06E40	0	0	0	17/1821Z DURATION 22 MINUTES		S06E40	Q	
						N11E47	0	0	0	TENFLARE 1900 FLUX UNITS 17/1849Z DURATION 15 MINUTES. PROTON EVENT BEGAN 17/1945Z 60 PROTONS/CM2/SEC/STER >= 10 MEV AT 17/2400Z		N11E47	Q	
353	19	18	145	193	030	S16W84	1	0	0	PRESTO XRAY EVENT X1/1B	19	S16W84	A	SOLALERT
						N10W64	8	1	0	S10W20 18/0818Z DURATION		S10W20	E	19/21
						S07E51	0	0	0	23 MINUTES. XRAY EVENT X1/2B		S07W51	Q	MAGALERT
						S06W39	1	0	0	S12W20 18/1504Z DURATION 19		S06W39	P	19/21
						S13W27	12	0	2	MINUTES		S13W27	P	
						S06E28	0	0	0			S06E28	Q	
						N11E34	0	0	0			N11E34	Q	
						S16E60	3	0	0			S16E60	Q	
354	20	19	118	179	025	N10W78	8	2	0	PRESTO PROTON EVENT BEGAN AT	20	N10W78	E	SOLALERT
						S07W51	2	0	0	19/1920Z MAXIMUM 72 PROTONS/		S07W51	A	20/22
						S11W41	13	1	0	CM2/SEC/STER >=10 MEV		S11W41	Q	MAGALERT
						S05E14	1	0	0	19/2350Z. MAGSTORM 19/0253Z		S05E14	Q	MINOR
						N11E21	0	0	0			N11E21	Q	20/22
						S17E46	0	0	0			S17E46	Q	
355	21	20	112	165	028	N09W92	3	2	0		21	N09W92	A	SOLALERT
						S07W65	4	0	0			S07W65	A	21/23
						S09W54	2	0	0			S09W54	A	MAGALERT
						N16W48	0	0	0			N16W48	Q	
						S06E00	0	0	0			S06E00	Q	
						N11E06	0	0	0			N11E06	Q	
						S17E33	0	0	0			S17E33	Q	
						N08E38	0	0	0			N08E38	Q	

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356	22	21	140	154	028	S07W81	2	0	0		22	S07W81	E	SOLALERT
						S09W68	1	0	0			S09W68	Q	MAGALERT
						N15W63	0	0	0			N15W63	Q	
						S03W27	0	0	0			S03W27	Q	
						S06W12	0	0	0			S06W12	Q	
						S19E10	1	0	0			S19E10	Q	
						S18E20	0	0	0			S18E20	E	
						N08E25	0	0	0			N08E28	Q	
						S13E80	4	1	0			S13E80	Q	
357	23	22	163	161	040	S08W92	4	0	1	PRESTO TENFLARE 900 FLUX	23	S08W92	E	SOLNIL
						S09W80	2	0	0	UNITS 22/0924Z DURATION 12		S09W80	Q	MAGNIL
						N14W77	0	0	0	MINUTES.XRAY EVENT X2/2B		N14W77	Q	
						S03W40	1	0	0	S09W82 22/0824Z DURATION 13		S03W40	Q	
						S07W24	0	0	0	MINUTES.		S07W24	Q	
						S18W03	2	0	0			S18W03	Q	
						N14W00	0	0	0			N14W00	Q	
						S17E07	0	0	0			S17E07	E	
						N08E11	0	0	0			N08E11	Q	
						S14E66	3	0	0			S14E66	A	
358	24	23	163	166	023	S03W54	0	0	0		24	S03W54	Q	SOLQUIET
						S06W37	0	0	0			S06W37	Q	MAGALERT
						S18W16	0	0	0			S18W16	Q	25/26
						N17W13	0	0	0			N17W13	Q	
						S18W07	0	0	0			S18W07	Q	
						N08W04	0	0	0			N08W04	Q	
						N08W03	0	0	0			N08W03	Q	
						S15E54	1	0	0			S15E54	Q	
						S14E75	1	0	0			S14E75	Q	
359	25	24	150	173	018	S03W68	0	0	0		25	S03W68	Q	SOLQUIET
						S18W31	1	0	0			S18W31	Q	MAGALERT
						N08W27	0	0	0			N08W27	Q	MINOR 25/26
						S18W20	1	0	0			S18W20	Q	
						N08W17	0	0	0			N08W17	Q	
						S15E40	3	0	0			S15E40	E	
						S16E63	0	0	0			S16E63	E	
360	26	25	143	176	015	S20W45	0	0	0	PRESTO XRAY EVENT X2/1B S17E31	26	S20W45	Q	SOLALERT
						N06W41	0	0	0	25/0716Z DURATION 85 MINUTES.		N06W41	Q	26/27
						S18W34	0	0	0	TENFLARE 860 FLUX UNITS		S18W34	Q	MAGALERT
						N08W31	0	0	0	25/0737Z DURATION 45 MINUTES.		N08W31	Q	MINOR 26/27
						S13E25	1	0	1	TENFLARE 240 FLUX UNITS		S13E25	A	
						S16E51	0	0	0	26/0011Z DURATION 5 MINUTES.		S16E51	E	
361	27	26	159	175	010	S19W57	0	0	0		27	S19W57	Q	SOLALERT
						N06W56	0	0	0			N06W56	Q	27/28
						S18W46	3	0	0			S18W56	Q	MAGALERT
						S09W44	3	0	0			S09W44	Q	MINOR 27
						S13E13	6	1	0			S13E13	A	
						S15E37	2	0	0			S15E37	Q	
						S20E62	0	0	0			S20E62	Q	
362	28	27	191	172	014	N06W73	1	0	0	PRESTO PROTON EVENT BEGAN AT	28	N06W73	Q	SOLALERT
						S19W71	0	0	0	27/0600Z WITH MAXIMUM OF 170		S19W71	Q	28/29
						S18W61	1	0	0	PROTONS/CM2/SEC/STER >= 10		S18W61	Q	MAGNIL
						N09W60	11	0	0	MEV AT 27/1145Z		N09W60	Q	
						S13W01	9	0	0			S13W01	A	
						S16E24	3	0	0			S16E24	Q	
						S20E48	0	0	0			S20E48	Q	
						N05E82	0	0	0			N05E82	Q	
363	29	28	149	162	015	S19W87	0	0	0		29	S19W87	Q	SOLALERT 29
						N05W86	0	0	0			N05W86	Q	MAGQUIET
						S19W73	0	0	0			S19W73	Q	
						N09W72	4	1	0			N08W72	Q	
						S19W16	3	0	0			S19W16	Q	
						S12W15	2	0	0			S12W15	A	

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NO	DI	DO	WOLF	10CM	A	LOC	TOT	M	X	OUTSTANDING EVENTS	DA	LOC	DE	ALERTS
						S16E11	2	0	0			S16E11	Q	
						N07E68	2	0	0			N07E68	Q	
364	30	29	135	152	015	S18W88	1	0	0	PRESTO XRAY EVENT X1/2B	30	S18W88	Q	SOLALERT
						N09W85	1	0	0	S13W12 29/0640Z DURATION 10		N09W85	Q	30/31
						S19W30	2	0	0	MINUTES.TENFLARE 680 FLUX		S19W30	Q	MAGQUIET
						S13W29	9	0	1	UNITS 29/0644Z DURATION 9		S13W29	A	
						S15W02	0	0	0	MINUTES.		S15W02	Q	
						N07E55	1	0	0			N07E55	Q	
365	31	30	115	147	012	S18W44	2	0	0		31	S18W44	Q	SOLALERT 31
						S13W43	7	1	0			S13W43	A	MAGQUIET
						S02W17	0	0	0			S02W17	Q	
						S15W14	0	0	0			S15W14	Q	
						N06E42	0	0	0			N06E42	Q	
001	01	31	103	139	009	S19W65	1	0	0		01	S19W65	Q	SOLNIL
						S13W56	6	0	0			S13W56	A	MAGQUIET
						S02W31	0	0	0			S02W31	Q	
						S17W26	0	0	0			S17W26	Q	
						N06E28	2	0	0			N06E28	Q	

NO=MESSAGE SERIAL NUMBER,DI=DATE OF ISSUE,DO=DATE OF OBSERVATION,WOLF=WOLF NUMBER,10CM=10 CM SOLAR FLUX
A=A INDEX,LOC=LOCATION LAT-LONG,TOT=TOTAL NUMBER OF FLARES,M=NUMBER OF M FLARES,X=NUMBER OF X FLARES
DA=DATE OF FORECAST,DE=DESCRIPLTION OF REGION,Q=QUIET,E=ERUPTIVE,A=ACTIVE,P=PROTON.

RELATIVE SUNSPOT NUMBERS
INTERNATIONAL, R_I

1982 FINAL — 1982 PROVISIONAL

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	92	258	168	145	63	70	50	55	115	132	80	88
2	94	241	174	115	57	83	41	68	124	164	88	133
3	112	232	175	151	46	94	33	68	146	143	75	124
4	109	221	177	137	58	104	42	81	176	120	100	137
5	112	219	163	112	63	111	39	97	160	109	100	137
6	86	230	165	117	64	108	32	128	141	55	76	174
7	94	226	146	130	69	115	33	144	117	54	106	175
8	97	232	140	131	89	127	42	150	115	55	82	184
9	98	211	116	132	47	142	61	161	94	54	124	152
10	85	181	122	138	53	147	110	155	81	88	109	166
11	46	158	119	152	58	138	146	157	86	87	112	171
12	52	156	135	142	75	144	187	138	78	92	83	194
13	51	162	155	133	78	139	219	113	81	98	98	172
14	58	142	153	136	58	137	222	100	104	88	116	160
15	81	134	140	127	52	125	246	100	129	71	116	166
16	76	111	156	122	69	128	263	86	133	65	100	130
17	111	120	180	108	76	136	272	93	127	54	108	112
18	139	103	168	91	89	134	270	105	107	39	117	102
19	143	107	167	87	110	134	234	97	117	56	122	79
20	134	119	160	93	112	139	192	77	104	70	118	63
21	134	120	153	91	98	143	138	79	102	91	131	98
22	121	100	146	109	121	146	99	90	95	100	141	88
23	93	97	144	138	107	116	74	71	97	128	120	96
24	70	120	122	145	110	112	27	79	109	145	96	100
25	82	128	152	149	88	92	25	101	118	134	75	112
26	119	136	147	150	117	94	29	98	138	135	73	116
27	125	154	182	126	130	49	22	115	133	131	71	126
28	168	163	179	90	119	36	19	132	132	103	74	108
29	216		169	85	112	32	23	134	144	94	71	98
30	211		162	79	77	38	38	144	160	96	72	94
31	237		132		82		60	120		73		62
MEAN	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.3	98.5	126.4

1981 Yearly Mean = 140.4
Zurich R_Z sunspot number replaced by international R_I sunspot number beginning with January 1981 data.
Errata to SGD, 456 Part I, page 8, August issue: mean R_I should be 102.6 and not 026.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO
FLUX ADJUSTED TO 1 A.U., S_a

1982

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	179.9	284.8*	231.3	172.2*	151.7	134.2	106.5	123.4	184.3*	205.2	159.6	167.8
2	177.2	279.7*	228.3	172.0*	147.4	135.1	106.9	138.2*	168.7*	209.4	154.5	166.3
3	176.1	272.9*	230.1	169.9	147.7	141.5	109.4	153.5*	171.0*	197.0	147.4	181.6
4	170.4	252.8*	238.3*	158.2	144.7	158.2*	111.5	167.3	188.1*	182.3	143.4	194.5
5	165.5	245.2	245.4*	159.9*	148.7	156.6*	114.1	180.9	179.4	163.9	136.4	195.9*
6	166.8	245.2	230.0*	165.2	153.0	149.6*	121.3	201.2	172.1	151.9	142.1	210.4
7	166.9*	239.9	228.3	164.0*	151.0	158.6*	128.2*	219.6	176.8	140.2	142.3	244.3
8	156.9	245.1*	207.1*	162.1*	150.8	167.3	150.3*	217.5*	178.5	136.9	144.8	241.7*
9	164.4	231.7	192.2	167.3*	139.8	177.4	176.6*	212.5	179.2	137.4	147.5	258.6
10	145.7	213.7	178.9*	177.1*	130.7	196.0*	203.5*	209.5	165.6	134.8	152.9	273.5*
11	136.3	211.1*	178.2	178.7*	132.3	224.2	226.4*	205.0*	158.3	137.3	154.1	259.3*
12	132.4	204.0*	181.2	177.5*	132.3	238.3*	239.7*	195.2*	152.5*	136.4	164.9	251.1
13	127.5	194.9*	185.5	170.9	129.8	240.2	252.6*	182.9*	151.3	143.9	161.2	239.0
14	130.5	185.3	201.3	157.9	132.2	240.8	269.2*	176.8	147.4	140.4	159.5	235.6
15	136.3	180.3	207.6*	152.2	132.1	235.8	274.0	173.0	149.0A	134.1	157.0*	221.9
16	146.7	170.5	227.7	148.2	139.0	210.6*	269.4*	161.4	147.3	129.8	163.3	213.2*
17	152.6	162.5	230.4	145.9*	142.2*	206.0*	273.3	165.1	147.0*	130.1	158.0	200.5*
18	167.6	165.7	226.8	147.0	146.8	200.7*	247.2*	166.4*	143.2	132.8	170.2*	186.5
19	169.4	170.9*	219.7*	145.1	155.9	207.5	234.7	159.2	142.6*	136.7	182.3	176.8*
20	167.0	171.3	217.0	144.2	155.6*	207.1	196.5	144.7	146.9	146.2	189.2	159.2
21	163.3	165.2	212.4	145.2	165.4*	210.7	173.7*	138.6	145.4	161.4	200.9	149.4
22	152.9	163.7	213.7	156.9*	158.8	197.2*	149.5*	138.8	146.2	168.2	231.1*	150.1*
23	148.0	173.1	202.4	175.2	155.7*	187.3	128.5	141.2	152.6*	177.3	196.1	157.0*
24	149.1	185.9*	189.0	181.0	144.8*	168.2	117.8	142.9	165.4*	190.9	172.9	166.8
25	169.3*	184.1	189.9	182.6*	145.7	159.1*	108.2	158.5	170.3	196.8	164.8	170.6
26	182.7*	204.0	192.8*	178.3	158.0	142.3	102.1	166.4	187.3	193.5	168.8*	168.7
27	197.2	222.1	195.4*	167.3	171.5*	127.6	97.8	180.4	191.4	187.7	158.6\	166.2
28	234.7	224.0	200.6	161.0*	171.3*	123.1	96.4	181.4	196.9	181.4	160.3*	157.0
29	267.0		198.0	155.6	170.9*	111.7	97.5	183.4	204.6	170.9	161.4	147.3
30	284.5		194.5*	149.8*	142.8	108.5	112.4	174.5	202.4	166.7	164.8	142.5
31	289.1		184.1		136.7		114.4	175.0*		165.1		134.4
MEAN	173.4	208.9	208.3	162.9	147.9	177.4	164.8	172.1	167.1	160.9	163.7	193.2

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

DECEMBER 1982

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_I	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	335	4	88	89	172.6	565	308	184	167.8	181	142	96	42	19
2	336	5	133	126	171.1		287	187	166.3	157	142	103	43	21
3	337	6	124	127	187.0				181.6					
4	338	7	137	135	200.3	580	317	219	194.5	189	158			
5	339	8	137	132	201.8*	592	359	244	195.9*	203	169	109	56	31
6	340	9	174	164	216.7	594	349	239	210.4	211	169	109	46	27
7	341	10	175	164	251.9	657	420	294	244.3	234	189	119	52	34
8	342	11	184	177	249.2*	686	431	309	241.7*	218	215	120	46	28
9	343	12	152	159	266.6	639	403	285	258.6	275	200	121	45	28
10	344	13	166	170	282.0*	665	473	311	273.5*	267	211	139	54	40
11	345	14	171	178	267.6*	617	423	290	259.3*	261	196	121	49	85
12	346	15	194	176	259.1	599	404	264	251.1	234	195	132	55	
13	347	16	172	155	246.6	637	406	262	239.0	221	202	136	51	56
14	348	17	160	136	243.1				235.6					
15	349	18	166	147	229.0	616	380	238	221.9	214	204	120	50	26
16	350	19	130	117	220.2*	616	371	258	213.2*	234	193	121	46	25
17	351	20	112	103	207.1*				200.5*					
18	352	21	102	96	192.7	626	369	209	186.5	180	168	119	45	22
19	353	22	79	68	182.6*	661	428	244	176.8*	206	173	140	50	19
20	354	23	63	56	164.5	591	340	185	159.2	156	151	112	40	18
21	355	24	98	78	154.3	567	319	175	149.4	134	144	90	35	17
22	356	25	88	81	155.1*	588	315	188	150.1*	164	142	106	41	15
23	357	26	96	104	162.4*				157.0*					
24	358	27	100	107	172.5	421	308	180	166.8	153	139	90	35	16
25	359	1	112	132	176.4	450	290	186	170.6	160	137	92	38	21
26	360	2	116	118	174.5				168.7					
27	361	3	126	113	171.9	578	293	187	166.2	157	137	102	40	61
28	362	4	108	109	162.4	557	285	179	157.0	146	130	93	42	18
29	363	5	98	93	152.3	572	267	168	147.3	152	129	93	43	31
30	364	6	94	81	147.4	564	289	161	142.5	130	125	91	36	16
31	365	7	62	68	139.0	580	287	154	134.4	117	121	89	36	16
MEAN			126.4	121.3	199.4	593	351	223	193.2	191	165	111	44	33

*Adjusted for burst.
Data gaps in AFGL Sagamore Hill data are due to equipment problems.
Errata to SGD, 456 Part I, page 9, August issue: mean R sub I should be 102.6 and not 026;
mean R sub A prime should be 105.1 and not 051.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX Adjusted to 1 AU	
	Rz or R_I		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153	136.0	144	144.1	151	190.8	197
Aug	135.4	150	133.0	144	121.9	150	170.3	196
Sep	155.0	150	150.0	146	138.8	152	185.9	198
Oct	164.7	150	160.8	149	157.1	154	202.9	200
Nov	147.9	148	149.9	149	168.5	153	213.4	199
Dec	174.4	143	167.5	145	174.3	150	218.8	196
Jan 81	114.0	140	115.4	144	120.5	149	169.0	195
Feb	141.3	142	143.7	146	153.5	152	199.5	198
Mar	135.5	143	149.2	149	157.5	156	203.2	202
Apr	156.4	143	169.2	149	180.7	158	224.7	204
May	127.5	143	141.3	149	152.8	159	198.9	204
Jun	90.9	142	99.0	147	112.9	158	161.9	203
Jul	143.8	140	154.3	146	152.1	157	198.2	203
Aug	158.7	141	170.4	147	182.1	158	226.0	203
Sep	167.3	143	174.5	148	177.7	158	221.9	204
Oct	162.4	142	157.0	146	178.6	156	222.8	202
Nov	137.5	139	138.8	142	157.6	151	203.3	197
Dec	150.1	138	145.0	140	155.5	149	201.4	195
Jan 82	111.2	137	110.4	139	124.2	148	173.4	195
Feb	163.6	133	161.0	134	163.6	144	208.9	191
Mar	153.8	129	155.5	130	163.0	139	208.3	186
Apr	122.0	124*	121.9	124	113.9	134	162.9	182
May	82.2	119*	82.6	120	97.7	129	147.9	177
Jun	110.4	117*	113.5	116	129.6	127	177.4	175
Jul	106.1	112(+ 3)*	113.3	111	116.0	121	164.8	---
Aug	107.6	106(+ 6)*	110.5	105	123.9	115	172.1	---
Sep	118.8	101(+ 7)*	117.8	100	118.5	108	167.1	---
Oct	94.3†	94(+ 8)*	90.1	93	111.8	100	160.9	---
Nov	98.5†	90(+ 9)*	93.2	89	114.8	96	163.7	---
Dec	126.4†	86(+10)*	---	85	146.7	91	193.2	---
Jan 83	---	81(+11)*	---	81	---	87	---	---
Feb	---	78(+11)*	---	78	---	83	---	---
Mar	---	77(+12)*	---	77	---	82	---	---
Apr	---	75(+13)*	---	75	---	80	---	---
May	---	72(+15)*	---	72	---	77	---	---
Jun	---	69(+17)*	---	69	---	74	---	---

*An asterisk denotes either a value of the observed 12-month running mean or a predicted 12-month average that is based on preliminary observations of the international relative sunspot number (R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces R_Z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS FOR CYCLE 21

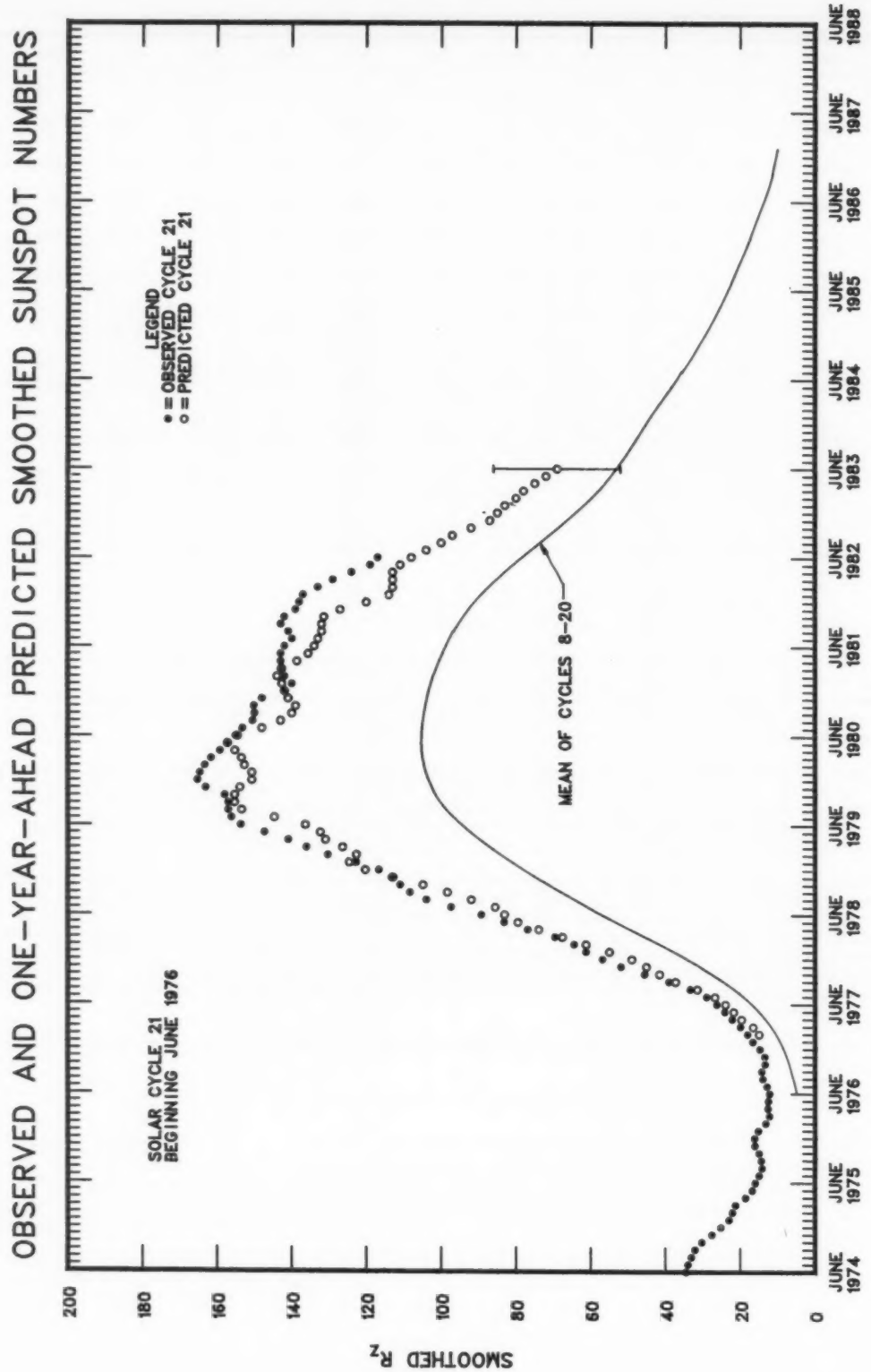
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	138
1982	137	133	129	124	119	117	112 (3)	106 (6)	101 (7)	94 (8)	90 (9)	86 (10)
1983	81 (11)	78 (11)	77 (12)	75 (13)	72 (15)	69 (17)	68 (18)	67 (20)	66 (21)	66 (23)	66 (23)	65 (23)
1984	64 (24)	61 (24)	57 (25)	53 (26)	51 (28)	50 (29)	49 (29)	47 (30)	45 (29)	43 (28)	41 (27)	39 (27)
1985	38 (27)	37 (26)	36 (25)	36 (25)	35 (25)	33 (24)	31 (23)	31 (22)	30 (21)	29 (22)	28 (23)	28 (23)
1986	27 (24)	26 (24)	25 (23)	24 (22)	22 (22)	20 (21)	18 (20)	17 (19)	16 (18)	16 (17)	15 (15)	15 (14)
1987	15 (12)	15 (12)	16 (12)	17 (12)	18 (13)	19 (14)	21 (14)					

For the current solar cycle, this table gives observed smoothed sunspot numbers up to the one calculated from the most recently measured monthly mean. These smoothed observed values are based on final monthly mean Zurich numbers through 1980, on final international numbers through September 1982, and on provisional monthly mean international numbers thereafter. Some table entries after the June 1976 number will change slightly, when we incorporate final data for 1982.

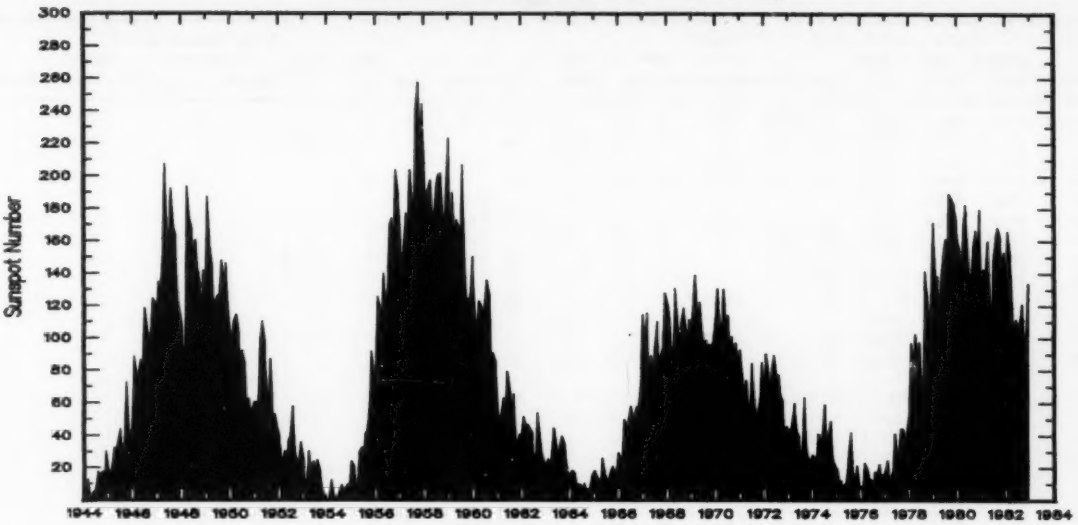
The entries with numbers in parentheses below them denote predictions by the McNish-Lincoln method. (See page 10 in the February 1982 edition of the "Solar-Geophysical Data" supplement.) By adding to and subtracting from each prediction the number in parentheses, one generates the 90% confidence interval. Consider, for example, the June 1983 prediction tabulated above. There exists a 90% chance that in June 1983 the actual smoothed sunspot number will fall somewhere between 52 and 86.

The McNish-Lincoln prediction method generates meaningful estimates of smoothed sunspot numbers for no more than 12 months ahead. Beyond a year the predictions regress rapidly toward the mean of all 13 cycles of data used in the computation. Furthermore, the method is very sensitive to the date defined as the beginning of the current sunspot cycle, that is, to the date of the most recent sunspot minimum. In "Solar-Geophysical Data," issues 390-401, we based the current cycle predictions on March 1976 as the end of cycle 20 and the onset of the new cycle 21. Later studies, including one published by M. Waldmeier, showed that June 1976 was more appropriately the minimum epoch. We therefore generated this table using the June 1976 date.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.


OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS
SMOOTHED R_Z
200
180
160
140
120
100
80
60
40
20
0
JUNE 1974
JUNE 1975
JUNE 1976
JUNE 1977
JUNE 1978
JUNE 1979
JUNE 1980
JUNE 1981
JUNE 1982
JUNE 1983
JUNE 1984
JUNE 1985
JUNE 1986
JUNE 1987
JUNE 1988
SOLAR CYCLE 21
BEGINNING JUNE 1976
LEGEND
• = OBSERVED CYCLE 21
○ = PREDICTED CYCLE 21
MEAN OF CYCLES 8-20

MONTHLY MEAN SUNSPOT NUMBERS
(January 1944 — December 1982)



MONTHLY MEAN SUNSPOT NUMBERS

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1944	3.7	0.5	11.0	0.3	2.5	5.0	5.0	16.7	14.3	16.9	10.8	28.4
1945	18.5	12.7	21.5	32.0	30.6	36.2	42.6	25.9	34.9	68.8	46.0	27.4
1946	47.6	86.2	76.6	75.7	84.9	73.5	116.2	107.2	94.4	102.3	123.8	121.7
1947	115.7	133.4	129.8	149.8	201.3	163.9	157.9	188.8	169.4	163.6	128.0	116.5
1948	108.5	86.1	94.8	189.7	174.0	167.8	142.2	157.9	143.3	136.3	95.8	138.0
1949	119.1	182.3	157.5	147.0	106.2	121.7	125.8	123.8	145.3	131.6	143.5	117.6
1950	101.6	94.8	109.7	113.4	106.2	83.6	91.0	85.2	51.3	61.4	54.8	54.1
1951	59.9	59.9	55.9	92.9	108.5	100.6	61.5	61.0	83.1	51.6	52.4	45.8
1952	40.7	22.7	22.0	29.1	23.4	36.4	39.3	54.9	28.2	23.8	22.1	34.3
1953	26.5	3.9	10.0	27.8	12.5	21.8	8.6	23.5	19.3	8.2	1.6	2.5
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1
1957	165.0	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6
1961	57.9	46.1	53.0	61.4	51.0	77.4	70.2	55.9	63.6	37.7	32.6	40.0
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1
1965	17.5	14.2	11.7	6.8	24.1	15.9	11.9	8.9	16.8	20.1	15.8	17.0
1966	28.2	24.4	25.3	48.7	45.3	47.7	56.7	51.2	50.2	57.2	57.2	70.4
1967	110.9	93.6	111.8	69.5	86.5	67.3	91.5	107.2	76.8	88.2	94.3	126.4
1968	121.8	111.9	92.2	81.2	127.2	110.3	96.1	109.3	117.2	107.7	86.0	109.8
1969	104.4	120.5	135.8	106.8	120.0	106.0	96.8	98.0	91.3	95.7	93.5	97.9
1970	111.5	127.8	102.9	109.5	127.5	106.8	112.5	93.0	99.5	86.6	95.2	83.5
1971	91.3	79.0	60.7	71.8	57.5	49.8	81.0	61.4	50.2	51.7	63.2	82.2
1972	61.5	88.4	80.1	63.2	80.5	88.0	76.5	76.8	64.0	61.3	41.6	45.3
1973	43.4	42.9	46.0	57.7	42.4	39.5	23.1	25.6	59.3	30.7	23.9	23.3
1974	27.6	26.0	21.3	40.3	39.5	36.0	55.8	33.6	40.2	47.1	25.0	20.5
1975	18.9	11.5	11.5	5.1	9.0	11.4	28.2	39.7	13.9	9.1	19.4	7.8
1976	8.1	4.3	21.9	18.8	12.4	12.2	1.9	16.4	13.5	20.6	5.2	15.3
1977	16.4	23.1	8.7	12.9	18.6	38.5	21.4	30.1	44.0	43.8	29.1	43.2
1978	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7
1979	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3
1980	159.6	155.0	126.2	164.1	179.9	157.3	136.3	135.4	155.0	164.7	147.9	174.4
1981	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1
1982	111.2	163.6	153.8	122.0	82.2	110.4	106.1	107.6	118.8	94.3*	98.5*	126.4*

*Provisional

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	01	0009	0013	0027	S14	E05	4007	12	1.4	18	SN	C 2.0	3	C		85		F
PURP	01	0036E	0036	0036D	S17	E08		12	1.6	18D	SN			P	0036	7	.1	E
GOES	01	0122	0140	0143			4005			21		C 1.4						
LEAR	01	0144	0144	0148	S11	E20	4005	12	2.6	4	SF		3	C		38		
GOES	01	0341	0356	0408						27		C 2.9						
LEAR	01	0605	0609	0616	S21	E04	4007	12	1.6	11	SF	C .9	3	C		88		F
YUNN	01	0605	0612U	0618	S19	E04		12	1.6	13	SF			P	0612	31	.3	
PURP	01	0612E	0612	0616	S19	E07		12	1.8	4D	SF			P	0612	52	.6	
WEND	01	1224	1232	1238	S11	E17		12	2.8	14	SF			C	1232	28	.3	
RAMY	01	1225	1225	1251	S12	E17	4005	12	2.8	26	SN	C 1.2	3	C		47		F
GOES	01	1941	2007	2007						26		C 1.3						
RAMY	01	2023	2024	2040	S12	W10	4007	12	1.1	17	SF		3	C		22		
LEAR	01	2344	2351	0038	N07	E76		12	7.7	54	SF		3	C				
LEAR	02	0011	0011	0014	N15	E64	4010	12	6.9	3	SF	C 2.0	3	C		23		F
PEKG	02	0018	0026	0054	N07	E76		12	7.7	36	SF			C	0026	25		D
LEAR	02	0145	0147	0204	S09	E07	4005	12	2.6	19	SF		3	C		32		F K
LEAR	02	0145	0153	0204	S09	E07	4005	12	2.6	19	SF		3	C		27		K
LEAR	02	0244	0250	0404	N11	E59		12	6.6	80	SF		3	C		45		K
LEAR	02	0244	0257	0404	N11	E59		12	6.6	80	SN		3	C		76		FHK
LEAR	02	0249	0300	0320	S14	E06	4005	12	2.6	31	SN	C 2.1	3	C		58		F
PEKG	02	0300	0306	0330	S13	E06		12	2.6	30	SF			C	0306	42	.4	D
LEAR	02	0424	0425	0430	N16	E64		12	7.0	6	SF		3	C		22		
PURP	02	0458	0459	0505	S12	W15		12	1.1	7	SF			C	0459	13	.1	E
PURP	02	0505	0509	0520	N14	E63		12	7.0	15	SN			C	0509	46	1.1	
GOES	02	0506	0509	0515						9		C 1.2						
PEKG	02	0613	0618	0635	N14	E62		12	6.9	22	SF			P	0618	84	1.8	E
LEAR	02	0618	0619	0623	N13	E62	4012	12	6.9	5	SF	C 2.0	3	C		53		F
PEKG	02	0642	0644	0725	S15	W12		12	1.4	43	1B			C	0644	197	2.2	E
MANI	02	0642E	0645	0714D	S15	W11		12	1.4	32D	SN		1	V		120	1.3	F
LEAR	02	0642	0646	0726	S16	W11	4007	12	1.4	44	SN	C 5.1	3	C		133		F
PURP	02	0643	0645	0737	S16	W11		12	1.4	54	SB			C	0645	92	1.0	
GOES	02	1023	1026	1028						5		C 2.0						
RAMY	02	1344	1352	1358	S18	W24	4007	11	30.7	14	SF		3	C		23		
RAMY	02	1414	1414	1427	S14	E00	4005	12	2.6	13	SN		3	C		24		
RAMY	02	1414E	1415	1514	N06	E67		12	7.6	60D	SN		3	C		38		
GOES	02	1431	1437	1447						16		C 2.3						
RAMY	02	1514	1518	1551	S07	W02	4005	12	2.5	37	SB	C 2.7	3	C		158		FE
RAMY	02	1534	1601	1610	N07	E65		12	7.5	36	SF		3	C		34		
RAMY	02	1733	1745	1940	N14	E53	4012	12	6.7	127	1B	M 1.3	3	C		164		UE
HOLL	02	1806E	1807	2235	N12	E50	4012	12	6.5	269D	2N		3	C		412		K
HOLL	02	1806E	2115	2235	N12	E50	4012	12	6.5	269D	2B		3	C		567		USK
GOES	02	2107	2117	2141			4014			34		M 1.8						
HOLL	02	2107	2124	2133	S14	W04	4005	12	2.6	26	SF		3	C		33		
HOLL	02	2236	2241	2331D	N06	E61	4014	12	7.5	55D	SF		3	C		22		
HOLL	02	2237	2238	2249	N14	E52	4012	12	6.9	12	SN		3	C		45		
HOLL	02	2257	2259	2309	N14	E51	4012	12	6.8	12	SN		3	C		69		
GOES	02	2300	2303	2306						6		C 5.2						
HOLL	02	2311	2313	2313D	S08	W06	4005	12	2.5	2D	1F		3	C		206		
LEAR	02	2312	2313	2339	S09	W07	4005	12	2.4	27	SF		3	C		88		F
YUNN	03	0027	0032	0058	N16	E52		12	7.0	31	SN			C		47	.8	
PURP	03	0042	0046	0110	N15	E51		12	6.9	28	SN			C	0046	20	.3	
YUNN	03	0059	0115	0137	N06	E61		12	7.6	38	1B			C		126	2.7	
PEKG	03	0103	0115	0130	N07	E59		12	7.5	27	1N			C	0115	126	2.5	E
LEAR	03	0104	0116	0247	N05	E60	4014	12	7.5	103	1B	M 1.4	3	C		208		ZF
PURP	03	0109	0115	0209	N07	E64		12	7.8	60	SN			C	0115	52	1.2	
LEAR	03	0233	0235	0241	S14	W06	4005	12	2.7	8	SF		3	C		52		
YUNN	03	0251E	0300U	0320	N06	E59		12	7.5	29D	SN			P	0300	63	1.2	
LEAR	03	0303	0303	0325	S10	W07	4005	12	2.6	22	SF		3	C		101		F
PURP	03	0304	0304	0323	S10	W06		12	2.7	19	SF			C	0304	40	.4	E
PEKG	03	0413	0442	0456	N06	E60		12	7.7	43	SN			C	0442	76	1.5	E
GOES	03	0427	0430	0432						5		C 1.9						
PEKG	03	0445	0456	0514	S08	W10		12	2.4	29	SF			C	0456	21	.2	D
YUNN	03	0541E	0542U	0553D	N06	E59		12	7.7	12D	SB			P	0542	63	1.2	
PEKG	03	0545	0610	0630	N07	E59		12	7.7	45	SF			C	0610	67	1.3	E
GOES	03	0603	0604	0611			4014			8		C 3.1						
PEKG	03	0630	0649	0705	S13	W29		12	1.1	35	SF			C	0649	55	.6	E
LEAR	03	0638	0638	0704	S13	W28	4007	12	1.2	26	SN		3	C		61		F
LEAR	03	0744	0749	0804	N11	E48	4012	12	6.9	20	SN	C 1.9	3	C		46		F
GOES	03	0821	0824	0826						5		C 2.5						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
WEND	03	0859	0910	1017	N08	E56		12	7.6	78	1B			C	0910	206	3.8	Z
LEAR	03	0900	0905	0925	N06	E55	4014	12	7.5	25	1B	M 1.3	3	C		216		FE
WEND	03	0908	0912	0922	S13	W09		12	2.7	14	SF			C	0912	25	.3	
GOES	03	0953	1005	1013						20		C 8.6						
GOES	03	1216	1219	1221						5		C 2.4						
RAMY	03	1219	1250	1537D	S21	W24	4007	12	1.7	198D	SN		3	C		77		
WEND	03	1222	1238	1246D	S18	W25		12	1.6	24D	SF			C	1238	106	1.3	L
RAMY	03	1223	1246	1259	N06	E55	4014	12	7.6	36	SF		3	C		30		
RAMY	03	1414E	1415	1431	S12	W13	4005	12	2.6	17D	SN	C 1.4	3	C		26		
HOLL	03	1449	1459	1512	S17	W27	4007	12	1.6	23	SF		3	C		100		F
GOES	03	1719	1722	1724						5		C 2.0						
HOLL	03	1749	1750U	1750D	S11	W13	4005	12	2.8	1D	SF		3	C		38		
GOES	03	1813	1821	1840			4007			27		C 1.8						
RAMY	03	1831	1841	1852	N13	W07	4013	12	3.2	21	SF		3	C		31		
RAMY	03	1850	1850	1858	S13	W15	4005	12	2.7	8	SN		3	C		24		
GOES	03	2024	2028	2031						7		C 2.1						
GOES	03	2109	2117	2126			4010			17		C 3.8						
GOES	03	2141	2144	2146			4010			5		C 3.4						
HOLL	03	2204E	2207	2245	N12	E37	4012	12	6.7	41D	SN		3	C		48		K
HOLL	03	2204E	2226	2245	N12	E37	4012	12	6.7	41D	SN		3	C		62		K
HOLL	03	2300	2303	2324	N05	E49	4014	12	7.6	24	1B	M 1.2	3	C		182		E
LEAR	03	2301	2303	2321	N06	E50	4014	12	7.7	20	SB		3	C		135		FE
LEAR	04	0024	0026	0037	N08	E37	4012	12	6.8	13	SF		3	C		64		F
LEAR	04	0103	0202	0401	S15	W35	4007	12	1.4	178	SF		3	C		131		F
PEKG	04	0115E	0125U	0245	S15	W35		12	1.4	90D	SN			P	0125	113	1.5	EK
YUNN	04	0115	0125	0140	S14	W33		12	1.6	25	SB			C		47	.6	
PEKG	04	0115E	0138U	0245	S14	W35		12	1.4	90D	SN			C	0138	126	1.6	E
YUNN	04	0328E	0328U	0342	S16	W33		12	1.6	14D	SF			P	0328	31	.4	
LEAR	04	0333	0334	0343	S14	W20	4005	12	2.6	10	SF		3	C		32		
LEAR	04	0346	0347	0358	N06	E44	4014	12	7.5	12	SF		3	C		43		
LEAR	04	0526	0527	0556	S13	W21	4005	12	2.6	30	SF	C 2.9	3	C		77		F
LEAR	04	0528	0528	0535	N06	E46	4014	12	7.7	7	SN		3	C		43		
LEAR	04	0606	0609	0631	N06	E42	4014	12	7.4	25	SN	C 2.5	3	C		93		
LEAR	04	0653	0654	0716	N05	E42	4014	12	7.4	23	SF		3	C		38		
GOES	04	0738	0744	0748						10		C 2.0						
LEAR	04	0757	0802	0845	S17	W38	4007	12	1.4	48	SN		3	C		67		F
GOES	04	0800	0817	0819						19		C 3.5						
LEAR	04	0907	0916	0924D	N06	E39	4014	12	7.3	17D	1B	M 1.0	3	C		287		
WEND	04	0911	0917	0940D	N07	E41		12	7.5	29D	1B			C	0917	180	2.5	
MONT	04	0914	0916	0936	N07	E39		12	7.3	22	SN			C	0916	110		W
GOES	04	1010	1042	1047						37		C 8.6						
WEND	04	1011	1030	1057D	N08	E40		12	7.4	46D	1N			C	1030	212	2.9	
MONT	04	1013	1021	1021D	N07	E39		12	7.3	8D	SN			C	1021	70		
WEND	04	1156	1204	1236	N12	E30		12	6.8	40	1B			C	1204	250	3.0	
GOES	04	1200	1207	1227						27		M 2.0						
WEND	04	1254	1255	1258	N09	E17		12	5.8	4	SN			C	1255	25	.3	
WEND	04	1359	1401	1406	N07	E38		12	7.4	7	SN			C	1401	31	.4	
GOES	04	1359	1402	1406						7		C 3.3						
HOLL	04	1432	1508	1604	S08	W28	4005	12	2.5	92	SF		3	C		94		F
HOLL	04	1451	1500	1523	S14	W41	4007	12	1.5	32	SF		3	C		121		F
HOLL	04	1503	1508	1525	N08	E39	4014	12	7.6	22	SF		3	C		33		
HOLL	04	1559	1601	1639	N06	E38	4014	12	7.5	40	SN		3	C		63		F K
HOLL	04	1559	1631	1639	N06	E38	4014	12	7.5	40	SN		3	C		39		K
RAMY	04	1603	1603	1707	N09	E39	4014	12	7.6	64	SN		3	C		75		
GOES	04	1618	1628	1636			4017			18		C 3.4						
RAMY	04	1633	1633	1648	S16	W41	4007	12	1.6	15	SF		3	C		28		
GOES	04	1713	1727	1745			4017			32		M 1.2						
HOLL	04	1731	1734	1743	N06	E38	4014	12	7.6	12	SF		3	C		20		F
HOLL	04	1824	1831	1853	S16	W43	4007	12	1.5	29	SF		3	C		27		F
HOLL	04	1840	1842	1850	S12	W28	4005	12	2.7	10	SF		3	C		21		F
HOLL	04	1853	1856	1934	S08	W31	4005	12	2.5	41	SF		3	C		45		
HOLL	04	1853	1912	1921	S17	W43	4007	12	1.5	28	SN		3	C		37		F
HOLL	04	1911	1923	1929	N14	W21	4013	12	3.2	18	SF		3	C		40		F
HOLL	04	1949	2028	2031	S16	W44	4007	12	1.5	42	SN		3	C		29		F
GOES	04	1954	1959	2018			4017			24		C 5.2						
HOLL	04	2003E	2004U	2027	S11	E83		12	11.1	24D	SN		3	C				
HOLL	04	2005	2007	2037	N08	E35	4014	12	7.5	32	SN		3	C		46		F
GOES	04	2026	2031	2036			4017			10		C 6.3						
HOLL	04	2034	2045	2238	S16	W44	4007	12	1.5	124	SN		3	C		65		F
HOLL	04	2120	2122	2126	S11	E82	4017	12	11.1	6	SF	M 1.0	3	C				

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HOLL	04	2130	2132	2147	N08	E35	4014	12	7.5	17	SN		3	C		26		F
HOLL	04	2150	2153	2202	N14	W23	4013	12	3.2	12	SF		3	C		36		F
HOLL	04	2151	2155	2156	S10	E82	4017	12	11.1	5	SF		3	C				
LEAR	04	2349	2349	0004	S14	W30	4005	12	2.7	15	SF		3	C		34		
GOES	05	0025	0032	0038						13		C 3.5						
GOES	05	0201	0208	0215						14		C 4.1						
PEKG	05	0203	0210	0224	N08	E33		12	7.6	21	SN			C	0210	42	.5	E
PEKG	05	0248	0258	0304	S15	W48		12	1.5	16	SF			P	0258	76	1.2	E
PEKG	05	0258E	0258	0319	N13	E25		12	7.0	21D	SN			P	0258	130	1.5	E
LEAR	05	0320E	0320U	0337	N12	W27	4013	12	3.1	17D	SN		2	C		86		H
PEKG	05	0323E	0325	0330	N12	W28		12	3.0	7D	SN			C	0325	46	.5	D
LEAR	05	0326	0328	0340	S10	W34	4005	12	2.6	14	SF		2	C		53		F
LEAR	05	0427	0432	0449	N08	E31	4014	12	7.5	22	SN	C 4.8	3	C		77		F
PEKG	05	0428	0435	0444	N11	E31		12	7.5	16	SN			C	0435	76	.9	E
LEAR	05	0525	0529	0537	S17	W50	4007	12	1.4	12	SF		3	C		25		
LEAR	05	0555	0558	0614	N12	W29	4013	12	3.1	19	SN	C 3.0	3	C		103		
PEKG	05	0556	0600	0609	N13	W28		12	3.1	13	SN			C	0600	67	.8	E
LEAR	05	0609	0614	0646	N08	E30	4014	12	7.5	37	SN	C 5.5	3	C		79		F
PEKG	05	0615	0619	0635	N09	E29		12	7.4	20	1N			C	0619	214	2.5	E
LEAR	05	0712	0714	0731	S16	W53	4007	12	1.3	19	SF		3	C		21		F
GOES	05	0807	0814	0824						17		C 5.8						
WEND	05	0916	0916	0918	N11	E13		12	6.4	2	SN			C	0916	25	.3	
WEND	05	0916	0918	0926	S09	E85		12	11.8	10	SF			C	0918	19		
LEAR	05	0921	0922	0924	S11	E76	4017	12	11.1	3	SF		3	C				
GOES	05	0958	1004	1025						27		M 2.8						
GOES	05	1152	1157	1203						11		C 2.3						
RAMY	05	1227	1228	1259	N08	E09	4010	12	6.2	32	SF		3	C		76		
RAMY	05	1227	1229	1248	N09	E13	4012	12	6.5	21	SF		3	C		55		
GOES	05	1428	1434	1447			4014			19		C 3.9						
RAMY	05	1435	1435	1436D	N05	E28	4014	12	7.7	1D	1N		3	C		236		
RAMY	05	1435	1435	1438D	N08	E26	4014	12	7.6	3D	1N		3	C		236		E
HOLL	05	1435	1435	1520	N08	E26	4014	12	7.6	45	1N		1	C		200		
HOLL	05	1615	1624	1640	N08	E25	4014	12	7.6	25	SB	M 1.0	3	C		165		E
HOLL	05	1654	1657	1722	S12	E77	4017	12	11.5	28	1F	C 3.5	3	C				
HOLL	05	1713	1713	1722	S16	W55	4007	12	1.5	9	SN		3	C		21		
HOLL	05	1822	1836	1840	S15	W53	4007	12	1.7	18	SN		3	C		14		
RAMY	05	1832	1837	1845	N13	E15	4012	12	6.9	13	SN		3	C		39		
GOES	05	1942	1959	2030			4005			48		C 3.3						
HOLL	05	2027	2029	2051	N08	E23	4014	12	7.6	24	SN	C 4.8	3	C		134		
HOLL	05	2038	2041	2053	S10	W41	4005	12	2.8	15	SF		3	C		20		
HOLL	05	2110	2118	2220	N13	E14	4012	12	6.9	70	SN	C 2.8	3	C		117		K
HOLL	05	2110	2129	2220	N13	E14	4012	12	6.9	70	SF		3	C		115		K
HOLL	05	2246	2250	2306	N09	E21	4014	12	7.5	20	SB		3	C		63		
GOES	06	0126	0219	0252						86		C 7.3						
GOES	06	0444	0446	0448			4014			4		C 2.4						
GOES	06	0502	0507	0537						35		C 4.2						
PEKG	06	0505	0510	0520	S11	E80		12	12.2	15	SF			C	0510	46		D
PEKG	06	0555	0556	0600	S10	E68		12	11.4	5	SN			C	0556	34		E
LEAR	06	0651E	0651U	0719	S11	E49	4016	12	10.0	28D	SF		2	C		40		F
LEAR	06	0703	0705	0734D	N04	W09	4010	12	5.6	31D	SF		2	C		47		F
LEAR	06	0736E	0740U	0745D	N07	E19	4014	12	7.7	9D	SN		2	C		43		
LEAR	06	0743E	0743U	0812	S24	W26	4019	12	4.3	29D	SF		2	C		27		
GOES	06	0744	0747	0749			4014			5		C 2.6						
GOES	06	0808	0817	0838						30		M 2.9						
LEAR	06	0813E	0830U	0915	N12	E07	4012	12	6.9	62D	SF		2	C		86		FH
LEAR	06	0818E	0825U	0904	N12	W43	4013	12	3.1	46D	SF		2	C		58		F
LEAR	06	0852	0854	0912	S24	W26	4019	12	4.4	20	SF		2	C		32		F
GOES	06	1029	1032	1037						8		C 2.8						
GOES	06	1302	1305	1308						6		C 2.2						
GOES	06	1346	1353	1400						14		C 2.0						
RAMY	06	1400	1437	1533	N13	W47	4013	12	3.0	93	1N	C 3.0	3	C		197		K
RAMY	06	1458	1530	1614	S23	W30	4019	12	4.3	76	SN		3	C		145		K
RAMY	06	1458	1548	1614	S23	W30	4019	12	4.3	76	SN		3	C		67		K
RAMY	06	1502	1551	1618	N13	E02	4012	12	6.8	76	SF		3	C		64		
HOLL	06	1523	1530	1626	S22	W28	4019	12	4.5	63	SN		3	C		67		K
HOLL	06	1523	1538	1626	S22	W28	4019	12	4.5	63	SN		3	C		80		K
HOLL	06	1532	1536	1549	S09	W26	4018	12	4.7	17	SN	C 4.4	3	C		31		
RAMY	06	1535	1543	1553	S09	W25	4018	12	4.8	18	SN		3	C		32		
RAMY	06	1545	1545	1602	N03	E04		12	7.0	17	SF		3	C		33		

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	06	1545	1547	1554	N01	E07	4014	12	7.2	9	SF		3	C		24		
HOLL	06	1555	1556	1614	N14	W47	4013	12	3.1	19	SF		3	C		18		
RAMY	06	1614	1638	1641	S23	W30	4019	12	4.4	27	SF		3	C		34		
HOLL	06	1623	1625	1633	N09	E11	4014	12	7.5	10	SN		3	C		100		
RAMY	06	1624	1625	1630	N09	E11	4014	12	7.5	6	SN		3	C		79		
RAMY	06	1643	1734	1817	S23	W31	4019	12	4.3	94	SN		3	C		108		K
RAMY	06	1643	1812	1817	S23	W31	4019	12	4.3	94	1N		3	C		197		K
HOLL	06	1650	2025	2028D	S23	W35	4019	12	4.0	218D	1B	C 3.2	3	C		221		E
HOLL	06	1652	1654	1657	N06	E08	4014	12	7.3	5	SF		3	C		38		
RAMY	06	1911E	1911	1933	S15	W73	4007	12	1.3	22D	SF	C 2.9	3	C				
HOLL	06	2008	2030	2207	N08	W04	4012	12	6.5	119	1B		3	C		221		K
HOLL	06	2008	2037	2207	N08	W04	4012	12	6.5	119	1B	C 8.1	3	C		408		ZUK
HOLL	06	2011	2013	2028	S10	W57	4005	12	2.6	17	SN		3	C		42		
HOLL	06	2019	2025	2154D	S23	W35	4019	12	4.1	95D	1B	C 5.2	3	C		221		E K
HOLL	06	2019	2146	2154D	S23	W35	4019	12	4.1	95D	SN		3	C		111		K
HOLL	06	2029	2037	2102	N06	E01	4014	12	6.9	33	SN		3	C		110		F
GOES	06	2104	2117	2147						43		M 2.2						
HOLL	06	2129	2129	2141	S10	E40	4016	12	9.9	12	SF		3	C		26		
HOLL	06	2155	2213	2251	S14	W78	4007	12	1.0	56	SF		3	C		21		K
HOLL	06	2155	2247	2251	S14	W78	4007	12	1.0	56	SF		3	C				K
HOLL	06	2241	2242	2305	S22	W36	4019	12	4.2	24	SN		3	C		32		
LEAR	06	2334	2335	2342	N08	E08	4014	12	7.6	8	SF		3	C		28		
LEAR	06	2346	2347	2356	S17	E81	4021	12	13.2	10	SF		3	C		11		
YUNN	07	0044	0056	0100	S22	W35		12	4.3	16	SB			P		94	1.3	
YUNN	07	0044	0056	0104	N15	W53		12	3.0	20	SN			C		47	.8	
YUNN	07	0047	0106	0106D	S16	E74		12	12.6	19D	1N			P		79		A
YUNN	07	0120E	0128	0133	N13	W54		12	3.0	13D	SB			P		31	.6	
LEAR	07	0123	0128	0237	N13	W51	4013	12	3.2	74	SN		3	C		65		
LEAR	07	0125	0126	0134	S10	W31	4018	12	4.7	9	SF		3	C		33		
GOES	07	0208	0230	0241						33		C 3.6						
GOES	07	0239	0254	0337			4019			58		C 3.7						
LEAR	07	0243	0249	0250D	S24	W36	4019	12	4.3	7D	SN		3	C		44		F
PEKG	07	0245	0249	0258	S23	W37		12	4.3	13	SN			P	0249	84	1.2	E
YUNN	07	0340	0342	0351	N14	W53		12	3.1	11	SN			C		31	.6	
YUNN	07	0340E	0345	0350	S22	W35		12	4.5	10D	SN			P		31	.4	D
LEAR	07	0403	0403	0422	N13	W53	4013	12	3.2	19	SF		3	C		46		
LEAR	07	0403	0405	0420	S15	E71	4021	12	12.5	17	SF		3	C		19		
LEAR	07	0414	0415	0424	N08	E04	4014	12	7.5	10	SF		3	C		29		
LEAR	07	0426	0456	0504	N13	W53	4013	12	3.2	38	SF		3	C		24		
LEAR	07	0537	0539	0552	N06	E03	4014	12	7.5	15	SB	C 5.0	2	C		100		FE
LEAR	07	0601E	0618U	0649	N14	W56	4013	12	3.0	48D	SN	C 6.5	2	C		71		F
LEAR	07	0607E	0614U	0638	N03	W06	4014	12	6.8	31D	SF		2	C		66		F
PEKG	07	0609	0614	0620	N04	W07		12	6.7	11	SF			P	0614	84	.9	E
PEKG	07	0609	0614	0626	N15	W56		12	3.0	17	SN			P	0614	59	1.1	E
LEAR	07	0632	0635	0639	N13	W06	4012	12	6.8	7	SF		2	C		33		
ISTA	07	0647		0654	N04	W03		12	7.1	7	SN							D
LEAR	07	0648	0658	0702	N03	W04	4014	12	7.0	14	SF		3	C		46		F
ISTA	07	0701		0706	N08	E06		12	7.7	5	SF							D
ISTA	07	0725		0729	N04	W03		12	7.1	4	SF							E
ISTA	07	0735		0751	N05	W07		12	6.8	16	SF							E
LEAR	07	0828	0829	0850	N14	W57	4013	12	3.0	22	SF	C 4.9	3	C		39		F
GOES	07	1001	1009	1036			4021			35		M 1.5						
RAMY	07	1301	1302	1309	N02	W08		12	6.9	8	SN		3	C		32		
GOES	07	1316	1320	1326						10		C 9.9						
RAMY	07	1409	1410	1417	N13	W58	4013	12	3.2	8	SN		3	C		18		
RAMY	07	1418	1429	1450	S15	W63	4005	12	2.8	32	SN		3	C		27		
RAMY	07	1424	1433	1442	S22	W40	4019	12	4.5	18	SN		3	C		45		
RAMY	07	1427	1428	1436	N14	W59	4013	12	3.1	9	SN		3	C		25		
RAMY	07	1510	1511	1550	N05	W03	4014	12	7.4	40	1B	M 1.2	3	C		413		K
RAMY	07	1510	1521	1550	N05	W03	4014	12	7.4	40	SB		3	C		136		K
RAMY	07	1639	1702	1739	N09	E82	4022	12	13.9	60	SN	C 8.9	3	C				
RAMY	07	1743	1747	1759	S12	W68	4005	12	2.6	16	SN		3	C		53		
RAMY	07	1743	1809	1842	S19	W79	4007	12	1.7	59	SB	M 1.3	3	C				F
RAMY	07	1748	1749	1810D	S23	W41	4019	12	4.6	22D	SB	M 1.0	3	C		76		
HOLL	07	1811E	1817U	1846	S17	W83	4007	12	1.4	35D	SN		3	C				F
HOLL	07	1843	1843	1855	S11	E43	4017	12	11.0	12	SF		3	C		18		
RAMY	07	1845	1846	1900	N13	W59	4013	12	3.3	15	SN		3	C		16		
RAMY	07	1900E	1917	1925	N14	W61	4013	12	3.2	25D	SN		3	C		21		
HOLL	07	2102	2108	2122	S11	E44	4017	12	11.2	20	SF		3	C		22		
GOES	07	2121	2130	2133						12		C 4.4						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	07	2315	2316		S23	W45	4019	12	4.5		SF		3	C		42		
LEAR	07	2317	2317	2323	N09	E79	4022	12	13.9	6	SF		3	C				
LEAR	07	2325	2340	0059	S10	E49	4017	12	11.7	94	1N		3	C		222		F
GOES	07	2336	2354	0047			4007			71		X 2.8						
LEAR	07	2341	2351	0046	S19	W86	4007	12	1.4	65	1B		3	C				UF
LEAR	07	2346	2351	0008	N16	E87	4022	12	14.6	22	SB		3	C				EH
YUNN	08	0023E	0100	0504D	S16	W90		12	1.2	281D				P				A
LEAR	08	0044	0055	0148	N08	W08	4014	12	7.4	64	SB		3	C		195		FE
YUNN	08	0045	0055	0115	N08	W08		12	7.4	30	SB			C		189	2.0	F
LEAR	08	0050	0051	0102	N09	E77	4022	12	13.8	12	SF		3	C				
PEKG	08	0109	0112	0116	N08	W07		12	7.5	7	SN			P	0112	109	1.2	E
YUNN	08	0120	0122	0124	S16	E67		12	13.1	4	SF			C		16		D
YUNN	08	0135	0138	0145	S16	E67		12	13.2	10	SN			C		31		E
LEAR	08	0139	0140	0144	S15	E70	4021	12	13.4	5	SF		3	C		15		
LEAR	08	0146	0148	0159	N13	W65	4013	12	3.2	13	SF		3	C		21		
LEAR	08	0227	0233	0256	N14	W65	4013	12	3.2	29	SN		3	C		60		
YUNN	08	0230	0234	0236	N05	W05		12	7.7	6	SN			C		16	.2	D
YUNN	08	0230	0234	0240	N13	W61		12	3.5	10	SN			P		31	.7	
PEKG	08	0233	0234	0235	N07	W05		12	7.7	2	SN			P	0234	42	.4	E
PEKG	08	0234E	0234	0238	N15	W67		12	3.0	4D	SN			P	0234	34		D
LEAR	08	0241	0307	0419	N07	E72	4022	12	13.5	98	1N		3	C				F
YUNN	08	0253	0300	0312D	N08	E73		12	13.6	19D	1N			P		110		E
PEKG	08	0258E	0309	0341	N08	E74		12	13.7	43D	SN			P	0309	105		E
LEAR	08	0305	0307	0322	S24	W47	4019	12	4.5	17	SN		3	C		90		F
PEKG	08	0309E	0309	0315	S23	W47		12	4.5	6D	SN			P	0309	76	1.2	E
LEAR	08	0313	0313	0317	S16	E69	4021	12	13.4	4	SF		3	C		22		F
YUNN	08	0327E	0327U	0403	N09	E71		12	13.5	36D	1B			P	0327	79		F
LEAR	08	0416	0420	0423	S16	E63	4021	12	13.0	7	SN		3	C		46		F
YUNN	08	0451	0455	0504	S16	E61		12	12.8	13	SN			C		16	.4	D
LEAR	08	0543	0600	0641	N10	W21	4012	12	6.7	58	SN		3	C		153		F
LEAR	08	0630	0631	0638	N14	W67	4013	12	3.2	8	SF		3	C		18		
LEAR	08	0728	0730	0736	N09	E72	4022	12	13.7	8	SF		3	C				
ISTA	08	0755E		0800	S16	E64		12	13.2	5D	SF							D
LEAR	08	0828	0835	0912	N10	E72	4022	12	13.8	44	1F	M 1.1	3	C				F
ISTA	08	0829		0848	N09	E76		12	14.1	19	1N							E
ISTA	08	0836		0841	N06	W07		12	7.8	5	SF							D
GOES	08	1106	1112	1203			4022			57		M 1.9						
RAMY	08	1323	1443	1837	N07	E68	4022	12	13.7	314	2B	M 6.7	3	C		443		ZUK
RAMY	08	1328	1337	1347	S10	E34	4017	12	11.1	19	SF		3	C		23		
RAMY	08	1814	1814	1826	S22	W59	4019	12	4.2	12	SF		3	C		28		
GOES	08	1935	1940	2016						41		M 1.3						
LEAR	08	2356	0002	0027	11	E60	4022	12	13.5	31	SF		3	C		75		F
LEAR	09	0129	0130	0140	S22	W60	4019	12	4.4	11	SN		2	C		69		F
LEAR	09	0202	0202	0216	N06	W20	4014	12	7.6	14	SF		3	C		94		F
LEAR	09	0215	0256	0349	N11	E68	4022	12	14.2	94	SN		3	C		87		
LEAR	09	0221	0307	0340	S11	E26	4017	12	11.1	79	SF		2	C		142		F
YUNN	09	0233E	0233U	0301D	N11	E70		12	14.4	28D	1N			P	0233	79		
LEAR	09	0235	0245	0334	N03	W24	4014	12	7.3	59	1N	M 1.3	2	C		375		F
YUNN	09	0252E	0300U	0301D	N07	W22		12	7.5	9D	1B			P	0300	204	2.3	FT
PEKG	09	0255E	0300	0307	N11	E70		12	14.4	12D	SF			P	0300	42		D
PEKG	09	0255E	0300	0309	N07	W23		12	7.4	14D	SN			P	0300	105	1.2	F
LEAR	09	0410	0420	0531	N07	W22	4014	12	7.5	81	1N		3	C		208		K
LEAR	09	0410	0451	0531	N07	W22	4014	12	7.5	81	1B	C 6.6	3	C		452		FEK
YUNN	09	0420E	0420U	0435	N07	W22		12	7.5	15D	SN			P	0420	79	.9	T
LEAR	09	0425	0432	0440	N11	E69	4022	12	14.4	15	SF		3	C		32		F
GOES	09	0445	0451	0500			4014			15		M 2.4						
YUNN	09	0447	0452	0500D	N09	W25		12	7.3	13D	SB			P		157	1.8	T
PEKG	09	0448	0451	0500	N10	W26		12	7.2	12	1N			C	0454	168	2.0	F
LEAR	09	0517	0522	0536	N09	E60	4022	12	13.7	19	SF		3	C		73		F
LEAR	09	0552	0601	0607	S17	E47	4021	12	12.8	15	SF		3	C		26		F
GOES	09	0635	0639	0643						8		C 9.5						
YUNN	09	0637	0642	0654	N07	W22		12	7.6	17	SF			C		47	.5	T
ISTA	09	0640E		0700	N07	W19		12	7.9	20D	SB							E
ISTA	09	0640E		0733	N03	W30		12	7.0	53D	2B							BF
LEAR	09	0645	0647	0716	N05	W28	4014	12	7.2	31	SF		3	C		70		F
YUNN	09	0651	0706	0740	N02	W32		12	6.9	49	SF			C		79	1.0	FT
LEAR	09	0713	0715	0721	N14	W70	4023	12	4.0	8	SF		3	C		18		
ISTA	09	0730		0740	N11	E69		12	14.5	10	SF							D
ISTA	09	0733		0743	N07	W25		12	7.4	10	SN							E

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
GOES	09	0816	0822	0826						10		C 5.6						
YUNN	09	0842	0843	0848	N11	E67		12	14.4	6	1N			C		79		
LEAR	09	0843	0845	0903	N10	E56	4022	12	13.6	20	SN	C 8.8	3	C		131		F
LEAR	09	0925	0926	0959D	N09	E58	4022	12	13.7	34D	SN		3	C		33		F
GOES	09	1031	1040	1102			4014			31		M 1.9						
GOES	09	1123	1138	1229						66		M 9.2						
GOES	09	1345	1354	1405						20		M 1.9						
GOES	09	1413	1418	1428						15		M 1.9						
RAMY	09	1444	1604	1635	N08	W28	4014	12	7.5	111	1B	M 1.7	3	C		199		
RAMY	09	1612	1637	1659	N11	E53	4022	12	13.7	47	SB	C 6.3	3	C		140		K
RAMY	09	1736	1737	1815	N09	E54	4022	12	13.8	39	SN		3	C		38		K
RAMY	09	1736	1800	1815	N09	E54	4022	12	13.8	39	SB	M 1.0	3	C		108		E K
RAMY	09	1900	1903	1929	N10	E51	4022	12	13.6	29	SB	M 1.0	3	C		127		U
GOES	09	2145	2149	2215			4022			30		M 2.3						
LEAR	09	2224E	2229U	2310	N09	E52	4022	12	13.8	46D	1F		2	C		228		FH
LEAR	09	2257	2304	2339	N08	W37	4014	12	7.2	42	SB	M 1.1	3	C		132		FEK
LEAR	09	2257	2318	2339	N08	W37	4014	12	7.2	42	SB		3	C		149		K
GOES	09	2315	2319	2327						12		M 1.0						
GOES	10	0016	0028	0043						27		M 2.5						
LEAR	10	0025	0029	0043	S12	E18	4017	12	11.4	18	SF		3	C		37		
LEAR	10	0037	0038	0044	N11	E58	4022	12	14.4	7	SF		3	C		28		
LEAR	10	0041	0054	0206	N07	W35	4014	12	7.4	85	1B	M 2.3	3	C		394		FE
YUNN	10	0100	0101	0115	N08	W36		12	7.3	15	SB			C		31	.4	
GOES	10	0114	0119	0132			4014			18		M 2.3						
LEAR	10	0131	0131	0141D	S16	E37	4021	12	12.9	10D	SF		3	C		49		F
LEAR	10	0156	0159	0205	N09	E49	4022	12	13.8	9	SN	M 1.4	3	C		108		F
LEAR	10	0158	0159	0204	S16	E35	4021	12	12.7	6	SF		3	C		45		
LEAR	10	0222	0228	0234	N09	E48	4022	12	13.7	12	SF		3	C		113		F
LEAR	10	0227	0227	0232	S10	W77	4018	12	4.3	5	SF		3	C				
LEAR	10	0236	0237	0326	N07	W36	4014	12	7.4	50	SN		3	C		68		K
LEAR	10	0236	0248	0326	N07	W36	4014	12	7.4	50	1B	M 5.2	3	C		213		FEK
LEAR	10	0237	0241	0556	N09	E47	4022	12	13.6	199	1B		3	C		282		UFK
LEAR	10	0237	0432	0556	N09	E47	4022	12	13.6	199	2B		3	C		676		K
MANI	10	0242E	0245	0252D	N09	W35		12	7.5	10D	1B		1	V		250	3.2	ZE
LEAR	10	0340	0342	0347	N05	W37	4014	12	7.4	7	SN		3	C		43		F
YUNN	10	0355	0505	0631	N07	E49		12	13.8	156	3B			P		1336	21.1	F
LEAR	10	0358	0412	0505	N07	W37	4014	12	7.4	67	1B		3	C		184		FE
GOES	10	0358	0432	0556			4022			118		M 8.2						
YUNN	10	0402	0415	0437	N08	W39		12	7.2	35	1N			C		204	2.7	E
MANI	10	0409	0410U	0415D	N09	W32		12	7.8	6D	SB		1	V		120	1.5	FE
LEAR	10	0521	0522	0531	N07	W37	4014	12	7.4	10	SN		3	C		32		
LEAR	10	0713	0715	0717	S17	E28	4021	12	12.4	4	SF		3	C		19		
LEAR	10	0753	0754	0759	N06	W40	4014	12	7.3	6	SB		3	C		162		
GOES	10	0753	0806	0815			4014			22		M 2.2						
YUNN	10	0755E	0807	0819	N08	W37		12	7.6	24D	SN			P		94	1.2	D
LEAR	10	0800	0807	0819	N07	W36	4014	12	7.6	19	SB		3	C		40		E
LEAR	10	0842	0842	0855	S07	E64	4024	12	15.2	13	SF		3	C		23		
LEAR	10	0842	0842	0918	N07	W39	4014	12	7.4	36	SN		3	C		44		
WEND	10	1037E		1044	N11	E50		12	14.2	7D	SF			C	1037	63	1.0	
WEND	10	1155	1158	1208	S15	E32		12	12.9	13	SN			C	1158	69	.9	
RAMY	10	1204	1321	1441	N05	W43	4014	12	7.3	157	SB		3	C		126		K
RAMY	10	1204	1332	1441	N05	W43	4014	12	7.3	157	1B	M 2.8	3	C		338		F K
WEND	10	1225	1240	1244	S21	E23		12	12.3	19	SF			C	1240	28	.3	L
WEND	10	1231	1236	1300D	N11	E46		12	14.0	29D	1F			C	1236	144	2.2	
WEND	10	1316	1331	1400	N06	W43		12	7.3	44	1N			C	1331	268	3.8	
RAMY	10	1602	1821	1904	N08	W47	4014	12	7.1	182	1B		3	C		361		K
RAMY	10	1602	1822	1904	N08	W47	4014	12	7.1	182	1B	C 9.3	3	C		389		K
GOES	10	1748	1759	1802			4014			14		M 1.0						
GOES	10	1814	1820	1832			4014			18		M 4.1						
RAMY	10	1854	1857	1909	S08	E84	4025	12	17.1	15	SN		3	C				
RAMY	10	1900	1903	1908	S14	E24	4021	12	12.6	8	SF		3	C		74		
RAMY	10	1911	2000	2019D	N06	W47	4014	12	7.3	68D	SN		3	C		45		
RAMY	10	1923	1927	1958	S08	E83	4025	12	17.0	35	SB		3	C				
RAMY	10	1943	1943	2000	S09	E03	4017	12	11.0	17	SN		3	C		38		
RAMY	10	1952	1958	2019D	S14	E23	4021	12	12.6	27D	SB		3	C		88		
GOES	10	2208	2211	2216						8		C 4.4						
GOES	10	2254	2255	2257						3		C 4.0						
GOES	10	2354	2356	2358						4		C 3.7						
GOES	11	0001	0002	0004						3		C 4.0						

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GOES	11	0029	0033	0039						10		C	6.6						
LEAR	11	0043	0044	0048	S15	E19	4021	12	12.5	5	SF			3	C		35		
GOES	11	0059	0101	0109						10		C	5.3						
PEKG	11	0122E	0122	0123D	S16	E22		12	12.7	1D	SF				C	0122	84	1.0	E
PEKG	11	0142	0143	0152	N07	W55		12	6.9	10	SF				C	0143	113	2.0	F
MANI	11	0142E	0143U	0147D	N07	W60		12	6.6	5D	SB			1	V		80	1.5	
GOES	11	0142	0143	0147			4014			5		C	6.3						
PEKG	11	0226	0232	0330	N04	W60		12	6.6	64	1F				C	0232	101	2.1	E
LEAR	11	0234	0246	0308	N05	W55	4014	12	7.0	34	SN	C	6.2	3	C		90		F
PEKG	11	0245	0248	0256	N09	W52		12	7.2	11	1N				C	0248	126	2.1	E
PEKG	11	0247	0248	0251	S14	E19		12	12.6	4	SF				C	0248	50	.6	E
LEAR	11	0247	0248	0258	S14	E20	4021	12	12.6	11	SN	M	1.1	3	C		116		F
LEAR	11	0313	0318	0330	N11	E42	4022	12	14.3	17	SF			3	C		33		F
LEAR	11	0326	0328	0331	S13	E19	4021	12	12.6	5	SN			3	C		70		F
PEKG	11	0343E	0346	0350	S14	E19		12	12.6	7D	SN				C	0346	122	1.4	E
LEAR	11	0343	0346	0420	S14	E19	4021	12	12.6	37	SB	C	6.0	3	C		197		FEK
LEAR	11	0343	0358	0420	S14	E19	4021	12	12.6	37	1N			3	C		218		K
PEKG	11	0354	0356	0405	S14	W18		12	9.8	11	SN				C	0356	126	1.4	F
LEAR	11	0400	0403	0413	N06	W49	4014	12	7.5	13	1B	C	7.5	3	C		215		FE
PEKG	11	0401	0404	0407	N08	W50		12	7.4	6	1N				C	0404	185	3.0	D
MANI	11	0402E	0402U	0408D	N08	W52		12	7.3	6D	SN			1	V		40	.7	
LEAR	11	0439	0442	0525	S10	E80	4025	12	17.2	46	1B			3	C				UF
GOES	11	0439	0442	0513			4026			34		M	9.5						
PEKG	11	0440	0442	0458	S11	E78		12	17.1	18	SN				C	0442	88		E
LEAR	11	0544	0545	0550	S13	E19	4021	12	12.7	6	SN	C	7.6	3	C		57		
LEAR	11	0552	0606	0659	S12	E03	4017	12	11.5	67	SF			3	C		83		F
LEAR	11	0608	0615	0653	N08	W63	4012	12	6.5	45	1B	C	8.6	2	C		1022		FE
LEAR	11	0651	0652	0715	N09	E33	4022	12	13.8	24	SF			3	C		60		
LEAR	11	0720	0729	0737	N07	W53	4014	12	7.3	17	SN	C	7.8	3	C		69		F
LEAR	11	0913	0915	0929	N07	W54	4014	12	7.3	16	SN			3	C		28		F
LEAR	11	0949	0952	0957	N07	W49	4014	12	7.7	8	SB	M	1.8	3	C		41		
RAMY	11	1335	1338	1344	N04	W57	4014	12	7.3	9	SN			3	C		74		
GOES	11	1405	1431	1450			4012			45		C	5.6						
RAMY	11	1435	1450	1539	N02	W66	4012	12	6.7	64	1N			3	C		128		F
RAMY	11	1440	1441	1451	S13	E74	4025	12	17.2	11	SF			3	C		31		
RAMY	11	1538	1538	1542	N15	E31	4022	12	14.0	4	SN			3	C		35		
RAMY	11	1548	1550	1604	N09	E26	4022	12	13.6	16	SN			3	C		62		
RAMY	11	1712	1713	1717	N06	W57	4014	12	7.4	5	SN			3	C		41		
RAMY	11	1759	1759	1809	S15	E17	4021	12	13.0	10	SF			3	C		27		
GOES	11	1829	1830	1839						10		C	2.7						
RAMY	11	1948	1956	2005	N15	E28	4022	12	13.9	17	SN	C	4.7	3	C		59		
HOLL	11	2124E	2124U	2128D	S15	E11	4021	12	12.7	4D	SN			3	C		25		F
GOES	11	2124	2129	2134			4021			10		C	7.0						
LEAR	11	2247	2248	2254	N07	W61	4014	12	7.4	7	SF			3	C		31		
LEAR	11	2341	2343	0021	N10	E22	4022	12	13.6	40	1N	C	4.6	3	C		236		F
MANI	11	2343E	2343	0018	N10	E23		12	13.7	35D	1N			1	V		200	2.3	F
LEAR	11	2351	2354	0029	S07	E43	4024	12	15.2	38	SF			3	C		25		F
LEAR	12	0013	0016	0028	S09	E69	4026	12	17.2	15	SN			3	C		63		
PEKG	12	0107	0109	0113	N07	W68		12	6.9	6	SF				C	0109	38		D
GOES	12	0108	0116	0118			4014			10		C	2.7						
LEAR	12	0117	0119	0127	N06	W64	4014	12	7.3	10	SF			3	C		55		
PURP	12	0122E	0122	0122D	N07	W65		12	7.2	10D	SN				P	0122	72	1.7	
PURP	12	0122E	0122	0122D	S12	W04		12	11.8	10D	SN				P	0122	40	.4	
PEKG	12	0122	0125	0134	S11	W05		12	11.7	12	SF				C	0125	59	.6	E
LEAR	12	0139	0150	0241	N10	E21	4022	12	13.6	62	1N	C	4.2	3	C		287		F
PEKG	12	0159E	0159	0205D	N11	E19		12	13.5	6D	SF				P	0159	126	1.4	E
LEAR	12	0213	0215	0219	N06	W63	4014	12	7.4	6	SN			3	C		38		F
PEKG	12	0214	0215	0220	N07	W66		12	7.1	6	SF				C	0215	34		E
LEAR	12	0249	0250	0256	N08	W62	4014	12	7.5	7	SN	C	5.3	3	C		48		F
PEKG	12	0250	0251	0255	N09	W61		12	7.5	5	SF				C	0251	29	.6	E
LEAR	12	0336	0339	0352	N11	E29	4022	12	14.3	16	SF			3	C		54		
LEAR	12	0404	0406	0422	S17	E12	4021	12	13.1	18	SF			3	C		50		
LEAR	12	0407	0407	0416	S14	E66	4026	12	17.2	9	SF			3	C		32		
LEAR	12	0459	0508	0535	N10	E20	4022	12	13.7	36	SF	C	2.2	2	C		142		F
LEAR	12	0630	0631	0713	N10	E16	4022	12	13.5	43	SF			3	C		83		K
LEAR	12	0630	0646	0713	N10	E16	4022	12	13.5	43	1N	C	4.6	3	C		284		F K
PEKG	12	0637	0643	0705	N10	E17		12	13.6	28	1N				C	0643	252	2.8	F
LEAR	12	0933	0934	0959D	S13	W10	4017	12	11.6	26D	SF			2	C		54		F
GOES	12	1157	1159	1204						7		C	2.1						
GOES	12	1249	1310	1320						31		C	2.8						

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RAMY	12	1322	1324	1329	N06	W67	4014	12	7.5	7	SB	M	1.0	3	C		30		
RAMY	12	1446	1448	1508	N08	E18	4022	12	14.0	22	SB	C	3.4	3	C		65		FE
RAMY	12	1546	1547	1553	N05	W64	4014	12	7.9	7	SN	C	2.7	3	C		49		
GOES	12	1656	1715	1718						22		C	2.6						
RAMY	12	1754	1813	1818	N06	W70	4014	12	7.5	24	SN			3	C		47		
RAMY	12	1756	1802	1811	N08	E16	4022	12	13.9	15	SN	C	3.3	3	C		34		
RAMY	12	1835	1851	1911	N12	E22	4022	12	14.4	36	SN			3	C		103		
GOES	12	2054	2056	2059						5		C	2.1						
GOES	12	2219	2227	2232						13		C	2.4						
LEAR	12	2322	2326	2337	S17	E00	4021	12	13.0	15	SF	C	2.3	3	C		31		
LEAR	13	0116	0116	0126	N07	W75	4014	12	7.4	10	SF	C	2.5	3	C				F
LEAR	13	0141	0146	0150	S12	E54	4026	12	17.1	9	SF	C	2.4	3	C		29		F
GOES	13	0237	0241	0244						7		C	2.1						
PEKG	13	0318	0331	0346	S09	E50		12	16.9	28	1N				C	0331	176	2.9	F
LEAR	13	0321	0326	0418	S09	E51	4026	12	17.0	57	2B	M	8.3	3	C		433		ZU
LEAR	13	0333	0333	0351	S06	E28	4024	12	15.2	18	SF			3	C		23		
LEAR	13	0354	0357	0403	N06	W73	4014	12	7.7	9	SF			3	C				
LEAR	13	0419	0419	0424	S16	E52	4026	12	17.1	5	SF			3	C		33		
GOES	13	0423	0432	0441			4026			18		C	5.6						
LEAR	13	0434	0457	0527	S13	E53	4026	12	17.2	53	SF	C	6.5	3	C		103		F
PURP	13	0502E	0502	0510D	S13	E54		12	17.3	8D	SN				P	0502	85	1.5	
LEAR	13	0610	0610	0622	S04	E36	4025	12	15.9	12	SF			3	C		35		F
LEAR	13	0802	0808	0903	S12	E51	4026	12	17.2	61	2B	M	5.2	3	C		420		FEK
LEAR	13	0802	0824	0903	S12	E51	4026	12	17.2	61	1N			3	C		203		K
LEAR	13	0906	0908	0917	S19	W11	4021	12	12.5	11	SF			3	C		61		
LEAR	13	0952	0953	1001	S04	E34	4025	12	16.0	9	SF			3	C		39		
RAMY	13	1201E	1202	1203	N05	W78	4014	12	7.7	2D	SN			3	C				
RAMY	13	1309	1322	1354	S13	W29	4017	12	11.4	45	1F	C	3.6	3	C		194		UF
RAMY	13	1642	1645	1649	S05	W17	4020	12	12.4	7	SN			3	C		35		
RAMY	13	1744	1750	1822	S10	E42	4026	12	16.9	38	SF	C	2.2	3	C		37		
RAMY	13	1809	1857	1857D	N11	E07	4022	12	14.3	48D	SB			3	C		128		
HOLL	13	1816	1819	1856D	N11	E07	4022	12	14.3	40D	SN			3	C		107		K
HOLL	13	1816	1856	1856D	N11	E07	4022	12	14.3	40D	SB			3	C		115		K
HOLL	13	1817E	1841	1922	S10	E39	4026	12	16.7	65D	SF			3	C		31		K
HOLL	13	1817E	1908	1922	S10	E39	4026	12	16.7	65D	SF			3	C		61		K
HOLL	13	1952	1959	2123	S09	E43	4026	12	17.1	91	1B	M	1.0	3	C		278		ZU
RAMY	13	1957E	1957U	2040D	S09	E40	4026	12	16.8	43D	1B			3	C		201		
HOLL	13	2044	2114	2203	S11	W25	4017	12	12.0	79	1N			3	C		299		K
HOLL	13	2044	2126	2203	S11	W25	4017	12	12.0	79	1B	C	7.0	3	C		306		U K
HOLL	13	2112	2112	2208	N12	E07	4022	12	14.4	56	1N			3	C		289		
GOES	14	0032	0037	0048						16		C	2.5						
GOES	14	0345	0355	0430						45		C	6.0						
PEKG	14	0417	0422	0432	N10	E01		12	14.3	15	SF				P	0422	55	.6	E
GOES	14	0630	0642	0647						17		C	2.9						
GOES	14	0737	0746	0752			4026			15		C	4.3						
LEAR	14	0740	0741	0742D	S10	E34	4026	12	16.9	2D	SF			2	C		45		F
GOES	14	1203	1205	1209						6		C	1.8						
RAMY	14	1244	1246	1302	N11	W02	4022	12	14.4	18	SF			3	C		50		
RAMY	14	1305	1307	1320	S10	E33	4026	12	17.0	15	SB	C	3.1	3	C		73		
RAMY	14	1349	1350	1356	S09	E32	4026	12	17.0	7	SN			3	C		42		
RAMY	14	1400	1401	1426	S08	E06	4024	12	15.0	26	SF	C	2.0	3	C		31		
RAMY	14	1421	1422	1433	S17	W23	4021	12	12.8	12	SN			3	C		43		
HOLL	14	1455	1502	1533	S11	W45	4017	12	11.2	38	SN	C	2.1	3	C		57		F
RAMY	14	1502	1502	1524	S13	W38	4017	12	11.8	22	SN			3	C		45		F
HOLL	14	1523	1541	1552	S11	E32	4026	12	17.1	29	SN	C	2.8	3	C		53		F
RAMY	14	1532	1541	1552	S10	E32	4026	12	17.1	20	SN			3	C		36		F
RAMY	14	1559	1600	1632	S17	W24	4021	12	12.8	33	SN			3	C		47		K
RAMY	14	1559	1613	1632	S17	W24	4021	12	12.8	33	SN			3	C		76		K
HOLL	14	1606	1619	1706	S11	E30	4026	12	16.9	60	SB	C	2.0	3	C		104		FE
RAMY	14	1619	1619	1650	S09	E30	4026	12	16.9	31	SB			3	C		65		F
RAMY	14	1728	1749	1806	S09	E28	4026	12	16.8	38	SN	C	2.1	3	C		33		
HOLL	14	1731	1736	1802	S17	W24	4021	12	12.9	31	SF			3	C		22		F
HOLL	14	1732	1735	1753	S10	E29	4026	12	16.9	21	SF			3	C		35		F
HOLL	14	1752	1752	1800	N10	W15	4022	12	13.6	8	SF			3	C		30		F
HOLL	14	1824	1825	1844	S18	W24	4021	12	12.9	20	SF			3	C		26		
HOLL	14	2011	2012	2017	S16	W25	4021	12	12.9	6	SF			3	C		49		
RAMY	14	2014	2028	2056D	S09	E26	4026	12	16.8	42D	SB			3	C		99		K
HOLL	14	2014	2032	2135	S09	E26	4026	12	16.8	81	SN	C	7.6	3	C		171		F
RAMY	14	2014	2047	2056D	S09	E26	4026	12	16.8	42D	SN			3	C		79		K

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
PALE	14	2015	2018	2123	S09	E27	4026	12	16.9	68	SN		3	C		53		F
HOLL	14	2140	2146	2337	N09	W09	4022	12	14.2	117	1N		3	C		237		F
HOLL	14	2143	2143	2224	S10	E25	4026	12	16.8	41	SF		3	C		25		F
PALE	14	2144	2144	2210	N12	W08	4022	12	14.3	26	SN		3	C		37		F
HOLL	14	2225	2225	2244	S15	W27	4021	12	12.9	19	SN		3	C		31		
LEAR	14	2230E	2230U	2302	N11	W08	4022	12	14.3	32D	SF		3	C		109		F
GOES	15	0059	0113	0118						19		C 2.1						
PALE	15	0132	0133	0140	S08	E04	4026	12	15.4	8	SF		2	C		50		F
LEAR	15	0150	0159	0326	S10	E24	4026	12	16.9	96	2B	X12.9	3	C		515		Z
PEKG	15	0155	0203	0248	S10	E24		12	16.9	53	2N			P	0203	526	6.0	F
PALE	15	0157	0200	0304D	S08	E24	4026	12	16.9	67D	2B		3	C		957		Z
YUNN	15	0158	0203	0227	S08	E23		12	16.8	29	3B			P		1258	14.2	Y
LEAR	15	0252	0305	0327	S14	W46	4017	12	11.6	35	SF		3	C		30		F
LEAR	15	0328	0329	0351	N10	W18	4022	12	13.8	23	SF		3	C		32		
LEAR	15	0506	0508	0523	S07	W40	4020	12	12.2	17	SN		3	C		68		
LEAR	15	0625	0630	0648	S13	W40	4028	12	12.2	23	SN	C 3.5	3	C		155		F
LEAR	15	0634	0634	0641	S08	E78	4029	12	21.1	7	SF		3	C				
GOES	15	0823	0825	0829						6		C 4.4						
GOES	15	0906	0914	0921						15		C 4.6						
GOES	15	1222	1226	1229						7		C 3.5						
GOES	15	1320	1323	1328						8		C 3.5						
HOLL	15	1516	1516	1523	S09	E15	4026	12	16.8	7	SF		3	C		23		F
HOLL	15	1536	1540	1551	S10	E15	4026	12	16.8	15	SN		3	C		24		F
HOLL	15	1541	1545	1603	N10	W17	4022	12	14.4	22	SN	C 3.4	3	C		25		F
HOLL	15	1620	1621	1749	S10	E15	4026	12	16.8	89	SN		3	C		36		K
HOLL	15	1620	1637U	1749	S10	E15	4026	12	16.8	89	2B	X 5.0	3	C		614		ZUK
HOLL	15	1647	1648	1705	S12	W59	4017	12	11.3	18	SN		3	C		67		F
GOES	15	1703	1710	1716			4026			13		M 1.4						
HOLL	15	1752	1752	1809	S16	W38	4021	12	12.9	17	SN		3	C		19		F
HOLL	15	1757	1757	1843	N10	W28	4022	12	13.6	46	SN		3	C		57		F
HOLL	15	1813	1823	1851	S11	W56	4017	12	11.5	38	SF		3	C		17		
PALE	15	2045E	2048	2321	S06	W01	4025	12	15.8	156D	1B		2	C		463		K
PALE	15	2045E	2152	2321	S06	W01	4025	12	15.8	156D	2B	M 2.5	2	C		541		FEK
HOLL	15	2047E	2047U	2102D	S05	E03	4025	12	16.1	15D	1B		2	C		457		ZH
PALE	15	2048	2048	2056	S02	W11	4024	12	15.0	8	SF		3	C		38		
GOES	15	2153	2159	2209			4025			16		M 5.2						
PALE	15	2204	2204	2231	N09	W30	4022	12	13.7	27	SN		3	C		46		F
LEAR	15	2252	2256	2301D	S13	W42	4021	12	12.8	9D	SF		3	C		50		
PALE	16	0058	0059	0114	N09	W33	4022	12	13.6	16	SF		2	C		48		F
PALE	16	0130	0131	0148	N15	W40	4021	12	13.0	18	SF		2	C		42		F
PALE	16	0219	0219	0228	S11	E13	4026	12	17.1	9	SF		2	C		26		
LEAR	16	0306	0307	0313	S12	E13	4026	12	17.1	7	SN		3	C		60		
PALE	16	0308	0309	0313	S11	E13	4026	12	17.1	5	SF		2	C		55		
PURP	16	0457	0502	0556	S16	W44		12	12.9	59	SF			C	0502	26	.4	E
PURP	16	0543	0550	0556D	S08	W04		12	15.9	13D	SN			C	0550	65	.7	
LEAR	16	0621	0621	0630	S11	E11	4026	12	17.1	9	SF	C 4.8	3	C		43		
LEAR	16	0724	0727	0758	S02	W12	4025	12	15.4	34	SN		3	C		68		
LEAR	16	0814	0815	0820	S09	E07	4026	12	16.9	6	SF		3	C		28		
GOES	16	0820	0823	0825						5		C 4.5						
GOES	16	0933	0936	0938						5		C 4.5						
GOES	16	0948	0952	1019			4025			31		C 3.7						
LEAR	16	1007	1007	1020D	S10	E05	4026	12	16.8	13D	1B	M 3.4	2	C		309		F
LEAR	16	1009	1011	1020D	S14	W50	4021	12	12.6	11D	SF		2	C		49		
GOES	16	1147	1150	1152						5		C 2.4						
RAMY	16	1418	1425	1451	S10	E04	4026	12	16.9	33	SB	M 1.1	3	C		163		F
HOLL	16	1419E	1420	1449D	S10	E04	4026	12	16.9	30D	SB		1	C		80		F
RAMY	16	1436	1438	1450	S16	W49	4021	12	12.9	14	SN		3	C		33		
RAMY	16	1453	1505	1709	S07	W09	4025	12	15.9	136	2B	X 1.6	3	C		576		FZ
RAMY	16	1457	1458	1459D	S11	E05	4026	12	17.0	2D	SB		3	C		94		
HOLL	16	1459E	1459U	1515	S07	W02	4026	12	16.5	16D	SN		3	C		143		
HOLL	16	1459E	1509	1556D	S06	W10	4025	12	15.9	57D	2B		3	C		820		
HOLL	16	1501	1501	1503D	S06	W10	4025	12	15.9	2D	2B		3	C		571		
RAMY	16	1649	1653	1726	S20	W49	4021	12	13.0	37	SN		3	C		133		
HOLL	16	1652	1653	1707	S19	W49	4021	12	13.0	15	SN		3	C		115		
RAMY	16	1710	1713	1809	S05	W12	4025	12	15.8	59	SF		3	C		87		
HOLL	16	1924	1929	2114	S17	W51	4021	12	12.9	110	1B	M 1.3	3	C		241		ZF
HOLL	16	1927	1928	1934	S08	E01	4026	12	16.9	7	SN		3	C		45		
HOLL	16	2010	2013	2108	S12	E02	4026	12	17.0	58	SN		3	C		82		F K
HOLL	16	2010	2035	2108	S12	E02	4026	12	17.0	58	SN		3	C		90		K

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp Sec	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	16	2028	2030	2043	N11	W34	4022	12	14.3	15	SF		3	C		20		
HOLL	16	2204	2211	2228	N11	W34	4022	12	14.4	24	SF		3	C		54		F
HOLL	16	2211	2212	2230	S16	W53	4021	12	12.9	19	SB	C 3.8	3	C		58		F
HOLL	16	2303	2313	2338	N10	W35	4022	12	14.3	35	SN		3	C		63		F
HOLL	16	2320	2320	2331	S05	W26	4024	12	15.0	11	SF		3	C		34		F
GOES	17	0001	0004	0006						5		C 2.7						
GOES	17	0125	0132	0136						11		C 2.6						
GOES	17	0145	0148	0209			4026			24		M 4.8						
LEAR	17	0153E	0153U	0206D	S11	W03	4026	12	16.9	13D	1B		2	C		403		UF
GOES	17	0220	0227	0235						15		C 7.2						
PEKG	17	0221	0226	0257	N11	W38		12	14.2	36	SN			C	0226	113	1.5	F
PEKG	17	0224	0226	0232	S09	W04		12	16.8	8	SF			C	0226	97	1.0	E
PEKG	17	0400	0404	0455	N11	W39		12	14.2	55	SF			C	0404	92	1.3	EK
PEKG	17	0400	0426	0455	N11	W40		12	14.2	55	1N			C	0426	160	2.2	F
LEAR	17	0421	0427	0500	N10	W38	4022	12	14.3	39	SB	C 8.4	3	C		138		F
MANI	17	0427E	0427U	0433D	N11	W38		12	14.3	6D	SN		1	V		100	1.4	
LEAR	17	0440	0451	0520	S20	W54	4021	12	13.1	40	SN	C 8.7	3	C		71		
PEKG	17	0445	0449	0505	S19	W56		12	12.9	20	1F			C	0449	118	2.2	F
PEKG	17	0517	0518	0530	S15	W03		12	17.0	13	SN			C	0518	113	1.2	E
LEAR	17	0518	0521	0547	S15	W01	4026	12	17.1	29	1N		3	C		227		F
BUCA	17	0732	0734	0815	N12	W40		12	14.3	43	SN			C	0734	54	.7	D
GOES	17	0806	0814	0824						18		C 4.6						
BUCA	17	0810	0812	0840	S15	W60		12	12.8	30	SN			C	0812	43	.9	D
YUNN	17	0905	0910	0915	N12	W41		12	14.3	10	SF			P		16	.2	D
YUNN	17	0910	0925	0930	S07	W14		12	16.3	20	SF			P		16	.2	D
GOES	17	1002	1004	1018			4021			16		M 1.3						
HOLL	17	1518	1518	1523	S05	W24	4025	12	15.8	5	SN		3	C		28		
HOLL	17	1640	1708	1743	S12	W13	4026	12	16.7	63	SB	M 1.4	3	C		138		UF
RAMY	17	1643	1707	1738	S11	W12	4026	12	16.8	55	SB		3	C		108		FE
HOLL	17	1709	1709	1732	N11	W47	4022	12	14.2	23	SN		3	C		25		F
HOLL	17	1725	1826	1947	S16	W65	4021	12	12.8	142	SF		3	C		38		K
HOLL	17	1725	1850	1947	S16	W65	4021	12	12.8	142	SN		3	C		103		F K
GOES	17	1819	1858	2143			4025			204		X10.1						
RAMY	17	1820	1857	2019D	S07	W20	4025	12	16.3	119D	3B		3	C		1613		ZU
RAMY	17	1848	1850	1855	S12	W74	4017	12	12.2	7	SN		3	C				
RAMY	17	1857	1857	1903	S11	W78	4017	12	11.9	6	SF		3	C		19		
HOLL	17	2027	2030	2043	S08	W14	4026	12	16.8	16	SN		3	C		101		F
RAMY	17	2028	2031	2041D	S12	W10	4026	12	17.1	13D	SN		3	C		85		F
HOLL	17	2057	2106	2225	S08	W14	4026	12	16.8	88	1B		3	C		391		K
HOLL	17	2057	2113	2225	S08	W14	4026	12	16.8	88	2B	M 4.2	3	C		512		UFK
GOES	17	2144	2153	2220			4026			36		M 4.8						
HOLL	17	2217	2250	2345D	S15	W66	4021	12	12.9	88D	1B	M 5.0	3	C		202		FE
HOLL	17	2307	2307	2312	S12	W12	4026	12	17.1	5	SN		3	C		31		
PEKG	18	0221	0228	0228D	S12	W19		12	16.7	7D	SF			P	0228	63	.7	E
PEKG	18	0222	0228	0230	S08	W41		12	15.0	8	SN			P	0228	113	1.6	E
GOES	18	0222	0228	0231						9		C 4.1						
PEKG	18	0235	0241	0244	S11	W21		12	16.5	9	SN			P	0241	59	.6	D
LEAR	18	0257E	0324	0343	S11	W18	4026	12	16.8	46D	SN		2	C		115		FH
PEKG	18	0304	0309	0332	S10	W17		12	16.8	28	SN			P	0309	71	.8	EK
PEKG	18	0304	0329	0332	S11	W17		12	16.8	28	SN			P	0329	143	1.7	E
LEAR	18	0351	0353	0355D	N09	W51	4022	12	14.3	4D	SF	C 8.6	2	C		34		
PEKG	18	0351	0359	0406	N10	W51		12	14.3	15	SF			P	0359	34	.6	E
PEKG	18	0356	0359	0420D	S11	W19		12	16.7	24D	SF			P	0359	59	.6	E
LEAR	18	0437E	0445U	0456	S10	W20	4026	12	16.7	19D	SF		2	C		31		
LEAR	18	0602	0626	0645	S10	W19	4026	12	16.8	43	SN	C 4.3	2	C		40		F
PEKG	18	0620	0621	0635	S09	W19		12	16.8	15	SN			P	0621	63	.7	E
LEAR	18	0620	0627	0646	N10	W52	4022	12	14.4	26	SF		3	C		37		F
LEAR	18	0648	0650	0658	S18	E71		12	23.7	10	SF		3	C		30		
LEAR	18	0649	0658	0705	S12	W18	4026	12	16.9	16	SN	C 3.3	3	C		58		F
LEAR	18	0722	0727	0733	S11	W21	4026	12	16.7	11	SN		3	C		70		
LEAR	18	0822	0825	0856	S10	W20	4026	12	16.8	34	1B	X 1.2	3	C		396		ZF
ISTA	18	0836E		0857	S10	W20		12	16.9	21D	1N							E
LEAR	18	0941	0955	0956	S18	E68		12	23.6	15	SF		3	C		13		
LEAR	18	0953	0958	1016	N11	W53	4022	12	14.4	23	SN	M 1.0	3	C		87		F
GOES	18	1137	1142	1149						12		C 2.6						
GOES	18	1234	1245	1247						13		C 2.4						
RAMY	18	1358	1405	1417	S10	W22	4026	12	16.9	19	SF	C 5.0	3	C		47		
HOLL	18	1504	1507	1522	S10	W20	4026	12	17.1	18	2B		2	C		650		UE
RAMY	18	1504	1508	1545	S11	W22	4026	12	17.0	41	2B	X 1.1	3	C		704		FE

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	18	1656	1658	1708	S18	E62		12	23.4	12	SF		3	C		26		F
HOLL	18	1735	1737	1740	N10	W58	4022	12	14.4	5	SF		3	C		18		F
GOES	18	1846	1855	1901						15		C 2.4						
HOLL	18	1927	1928	1935	S13	W29	4026	12	16.6	8	SF		3	C		44		
HOLL	18	1949	1952	2018	S11	W85	4021	12	12.4	29	SB	C 4.2	3	C				
HOLL	18	2018	2018	2024	N11	W63	4022	12	14.1	6	SN		3	C		14		
HOLL	18	2118	2118	2124	S07	W38	4025	12	16.0	6	SF		3	C		26		
GOES	18	2120	2125	2134			4025			14		C 4.1						
HOLL	18	2214	2221	2226	S11	W29	4026	12	16.7	12	SF		3	C		22		
GOES	18	2240	2244	2247						7		C 2.9						
HOLL	18	2249	2259	2259D	N12	W61	4022	12	14.4	10D	SF	C 3.2	3	C		33		
LEAR	18	2253E	2259	2321	N10	W61	4022	12	14.4	28D	SF		3	C		17		F
LEAR	18	2310	2311	2318	S11	W29	4026	12	16.8	8	SF		3	C		70		
LEAR	18	2330	2330	2348	S13	W31	4026	12	16.6	18	SF		3	C		48		
GOES	18	2349	0005	0017						28		C 3.0						
LEAR	18	2351	0003	0044	N11	W62	4022	12	14.3	53	SF		3	C		60		
LEAR	19	0004	0012	0031	S04	W43	4025	12	15.8	27	SF		3	C		34		
LEAR	19	0020	0021	0023	S05	E29	4029	12	21.2	3	SF		3	C		32		
GOES	19	0032	0036	0040						8		C 3.9						
LEAR	19	0046	0054	0120	S08	W40	4025	12	16.0	34	SB	C 7.9	3	C		104		F
LEAR	19	0125	0139	0220	S11	W29	4026	12	16.9	55	1B	M 3.3	3	C		477		U
PEKG	19	0135	0136	0144	S10	W31		12	16.7	9	1N			C	0136	281	3.4	F
LEAR	19	0144	0147	0203	N12	W63	4022	12	14.3	19	SF		3	C		14		
LEAR	19	0226	0229	0310	S13	W32	4026	12	16.7	44	1N	C 4.6	3	C		419		
PEKG	19	0230	0232	0240	S13	W33		12	16.6	10	1N			P	0232	252	3.2	F
LEAR	19	0453	0454	0503	S10	W29	4026	12	17.0	10	SF	C 2.3	3	C		54		F
LEAR	19	0501	0502	0505	N06	W67	4022	12	14.2	4	SF		3	C		17		
GOES	19	0600	0628	0632			4022			32		C 4.0						
LEAR	19	0610	0613	0622	N17	W62	4022	12	14.5	12	SF		3	C		14		F
PEKG	19	0623	0629	0717	N19	W63		12	14.5	54	SF			C	0629	55		E
LEAR	19	0636	0653	0702	S09	W30	4026	12	17.0	26	SN		3	C		97		FH
PEKG	19	0639	0640	0642	S10	W32		12	16.9	3	SF			C	0640	76	.9	E
PEKG	19	0647	0649	0650D	S09	W32		12	16.9	3D	SF			P	0649	67	.8	E
LEAR	19	0753	0753	0757	S11	W35	4026	12	16.7	4	SF		3	C		32		F
LEAR	19	0817	0818	0823	S11	W35	4026	12	16.7	6	SF		3	C		36		
LEAR	19	0822	0830	0837	N08	W72	4022	12	13.9	15	SF		3	C				
LEAR	19	0855	0900	0931	S09	W32	4026	12	17.0	36	1N	C 9.4	2	C		209		FH
LEAR	19	0949	0950	0954	N09	W71	4022	12	14.1	5	SF	C 4.4	2	C		56		F
GOES	19	1126	1135	1140						14		C 3.8						
RAMY	19	1206	1237	1319	N10	W62	4022	12	14.8	73	SF		3	C		46		
GOES	19	1346	1352	1356						10		C 3.3						
RAMY	19	1508	1639	1646D	N10	W74	4022	12	14.1	98D	2B		3	C				
HOLL	19	1515	1522	1531	N09	W75	4022	12	14.0	16	SF		3	C				F
HOLL	19	1541	1616	1834	N10	W75	4022	12	14.0	173	SB		3	C		94		K
HOLL	19	1541	1632	1834	N10	W75	4022	12	14.0	173	2B	M 9.0	3	C				ZYK
HOLL	19	1838	1841	1901	S16	W36	4026	12	17.0	23	SF		3	C		33		F
HOLL	19	1918	1918	1929	S16	W36	4026	12	17.1	11	SF		3	C		24		F
HOLL	19	1934	1937	1947	S17	W37	4026	12	17.0	13	SF		3	C		28		F
HOLL	19	2219	2219	2231	S16	W38	4026	12	17.0	12	SF		3	C		30		
GOES	19	2228	2232	2238			4022			10		M 1.4						
HOLL	19	2230	2231	2233	N09	W80	4022	12	13.9	3	SN		3	C				
HOLL	19	2235	2235	2239	N10	W79	4022	12	14.0	4	SN		3	C				F
HOLL	19	2246	2317	2352D	S08	W43	4026	12	16.7	66D	1N		3	C		247		FH
LEAR	19	2314	2322	2341	S10	W44	4026	12	16.7	27	SN		3	C		55		FH
LEAR	20	0019	0025	0044	N10	W76	4022	12	14.3	25	SN	M 2.0	3	C				F
GOES	20	0100	0109	0115						15		C 7.4						
LEAR	20	0216	0217	0221	N07	W79	4022	12	14.2	5	SF	M 1.3	3	C				
LEAR	20	0341	0342	0353	S11	W42	4026	12	17.0	12	SF		3	C		58		F
PEKG	20	0345	0347	0350	S09	W43		12	16.9	5	SF			C	0347	55	.8	E
GOES	20	0551	0625	0629						38		C 5.5						
LEAR	20	0635	0635	0639	N09	W80	4022	12	14.3	4	SF		3	C				
GOES	20	0710	0715	0728						18		M 1.0						
LEAR	20	0730	0740	0745	S08	W56	4025	12	16.1	15	SF		3	C		24		
LEAR	20	0849	0903	0950	S11	W48	4026	12	16.8	61	1B	C 6.9	3	C		210		F
GOES	20	1244	1249	1304						20		C 5.0						
GOES	20	1558	1607	1635			4022			37		M 1.0						
HOLL	20	1602	1603	1614	S06	W58	4025	12	16.3	12	SN		3	C		32		
HOLL	20	1617	1619	1725	S07	W62	4025	12	16.0	68	SB		3	C		111		FE
GOES	20	1702	1708	1718			4033			16		M 1.0						

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Imp See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
HOLL	20	1802E	1802U	1836	N16	W45		12	17.3	34D	SN		3	C		21		FH
HOLL	20	1938	1953	2014	S07	W64	4025	12	16.0	36	SF		3	C		31		
GOES	20	2137	2142	2147						10		C 2.0						
GOES	20	2224	2228	2230						6		C 2.5						
GOES	20	2338	2342	2346						8		C 3.2						
GOES	21	0209	0215	0222						13		M 2.9						
GOES	21	0421	0425	0428						7		C 2.7						
GOES	21	0458	0512	0537			4033			39		M 3.3						
LEAR	21	0554	0605	0612D	S10	W70	4025	12	16.0	18D	1N		2	C		255		F
LEAR	21	0601	0605U	0648	S11	W66	4026	12	16.3	47	SF		2	C		44		F
GOES	21	0643	0647	0655						12		M 1.1						
GOES	21	1150	1152	1208						18		C 2.8						
HOLL	21	1558	1650	1702	S15	E83	4033	12	28.0	64	SF	C 2.2	3	C				F
GOES	21	1645	1648	1650						5		C 2.3						
RAMY	21	1656	1700	1715	S18	E15		12	22.8	19	SN		3	C		59		F
HOLL	21	1703	1708	1816	S17	E79	4033	12	27.7	73	SF		3	C		26		K
HOLL	21	1703	1716	1816	S17	E79	4033	12	27.7	73	SN		3	C				F K
GOES	21	1845	1850	1855			4025			10		C 3.0						
HOLL	21	1913	1913	1920	S14	E80	4033	12	27.9	7	SF		3	C				
GOES	21	2033	2139	2155						82		C 5.0						
GOES	21	2123	2139	2140						17		C 4.5						
HOLL	21	2247	2247	2316D	S17	E74	4033	12	27.6	29D	SN		3	C				F
GOES	21	2311	2318	2320						9		C 2.7						
LEAR	22	0128	0135U	0142	S16	E73	4033	12	27.6	14	1N	C 1.8	2	C				F
LEAR	22	0208	0209	0225D	S08	W72	4026	12	16.7	17D	1F	C 3.1	2	C				F
LEAR	22	0218	0222U	0241D	S08	W79	4025	12	16.2	23D	SF		2	C				H
LEAR	22	0312E	0326U	0332	S09	W81	4025	12	16.1	20D	SF	C 2.1	2	C				
LEAR	22	0417	0422	0441	S12	W71	4026	12	16.8	24	SN	C 1.8	3	C		138		FH
LEAR	22	0508	0513	0531	S04	W30	4035	12	20.0	23	SF	C 2.0	3	C		43		
LEAR	22	0631	0636	C647	S09	W82	4025	12	16.1	16	1F	C 3.9	3	C				
ISTA	22	0704		0718	S09	E05		12	22.7	14	1B				0707			U
LEAR	22	0706	0714	0727	S19	E06	4036	12	22.8	21	SN		3	C		88		F
LEAR	22	0826	0833	0857	S09	W82	4025	12	16.2	31	SB	X 2.4	3	C				
ISTA	22	0830E		0850	S09	W90		12	15.6	20D	3B							A
LEAR	22	0940	0946	1005	S19	E03	4036	12	22.6	25	SN	C 7.9	3	C		179		F
GOES	22	1304	1331	1332						28		C 3.6						
GOES	22	1758	1759	1803						5		C 1.7						
LEAR	22	2241	2246	2251	S17	E63	4033	12	27.7	10	SF	C 2.9	3	C		60		
LEAR	22	2346	2346	2350	S20	E76	4033	12	28.8	4	SF	C 2.8	3	C				H
LEAR	23	0435	0440	0448	S10	W90	4026	12	16.4	13	SF	C 1.2	3	C				
LEAR	23	0509	0510	0517	S09	W90	4026	12	16.5	8	SN	C 3.4	3	C				
LEAR	23	0729	0731	0804	S17	E58	4033	12	27.7	35	SN	C 3.4	3	C		103		F K
LEAR	23	0729	0750	0804	S17	E58	4033	12	27.7	35	SN		3	C		51		K
GOES	23	0933	0938	0948						15		C 2.2						
GOES	23	1425	1428	1431						6		C 1.8						
GOES	23	2014	2118	2202			4039			108		C 5.0						
YUNN	24	0101	0126	0127	S18	W19		12	22.6	26	SF			P		32	.4	
YUNN	24	0121	0125	0135	S18	E48		12	27.7	14	SN			C		16	.3	
LEAR	24	0125	0125	0137	S17	E48	4033	12	27.7	12	SN	C 1.9	3	C		55		U
LEAR	24	0241	0245	0251	S18	W18	4036	12	22.7	10	SF		3	C		31		
GOES	24	0242	0245	0257			4033			15		C 1.0						
YUNN	24	0306E	0306U	0324D	S17	W19		12	22.7	18D	SN			P	0306	32	.4	
GOES	24	1008	1016	1027						19		C 3.7						
GOES	24	1306	1317	1321						15		C 1.5						
GOES	24	1739	1742	1745						6		C 1.8						
HOLL	24	1853	1903	1911	S12	E52	4033	12	28.7	18	SF		3	C		28		FS
GOES	24	1912	1914	2031			4033			79		C 7.9						
HOLL	24	2052	2053	2104	S18	W18	4031	12	23.5	12	SN		3	C		96		
GOES	25	0324	0330	0336						12		C 3.6						
PEKG	25	0325E	0330	0345	S18	W22		12	23.5	20D	1N			P	0330	294	3.4	E
GOES	25	0445	0510	0545						60		C 5.0						
GOES	25	0611	0628	0641						30		C 9.6						
PEKG	25	0618E	0628U	0700	S16	E49		12	29.0	42D	1N			P	0628	218	3.5	F
PEKG	25	0711E	0733	0756D	S17	E48		12	28.9	45D	2B			P	0733	484	7.6	FUK
PEKG	25	0711E	0756	0756D	S17	E43		12	28.6	45D	3B			P	0756	1262	18.9	F
ISTA	25	0725E		0810	S17	E45		12	28.7	45D	3B							F

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GOES	25	0743	0750	0843			4033			60		X	2.2						
GOES	25	1656	1700	1704						8		C	1.5						
GOES	25	1753	1801	1806						13		C	2.8						
GOES	25	2130	2134	2138						8		C	1.4						
GOES	25	2201	2204	2210						9		C	2.1						
LEAR	26	0011	0013	0035	S11	E20	4033	12	27.5	24	1B			3	C		189		F
GOES	26	0011	0013	0051			4033			40		C	9.0						
MANI	26	0012	0013	0033	S15	E30		12	28.3	21	1N			1	V		175	2.1	
PALE	26	0017E	0017U	0051D	S11	E19	4033	12	27.4	34D	1N			3	C		425		
LEAR	26	0046	0047	0100	S19	E53	4039	12	30.1	14	SN			3	C		45		
PALE	26	0046	0047	0051D	S17	E50	4039	12	29.8	5D	SF			3	C		53		
LEAR	26	0103	0104	0146	S19	W32	4031	12	23.6	43	SN			3	C		149		K
LEAR	26	0103	0121	0146	S19	W32	4031	12	23.6	43	SN	C	2.0	3	C		151		F K
GOES	26	0117	0120	0131			4031			14		C	2.2						
LEAR	26	0144	0151	0308	S11	E25	4033	12	28.0	84	2B	C	9.8	3	C		654		FE
PEKG	26	0150E	0153	0244	S11	E25		12	28.0	54D	1N				P	0153	210	2.4	F
PALE	26	0205E	0215U	0310	S10	E27	4033	12	28.1	65D	1N			3	C		351		
PALE	26	0206	0207	0214	N07	W31	4032	12	23.8	8	SF			3	C		29		
LEAR	26	0306	0308	0318	N06	W31	4032	12	23.8	12	SF			3	C		57		F
LEAR	26	0909	0911	1007D	S11	E14	4033	12	27.4	58D	SF			3	C		170		K
LEAR	26	0909	0937	1007D	S11	E14	4033	12	27.4	58D	1B	M	1.1	3	C		287		K
GOES	26	0952	0956	1001			4033			9		C	3.5						
GOES	26	1038	1041	1043						5		C	2.5						
GOES	26	1137	1140	1142						5		C	2.0						
GOES	26	1141	1201	1222						41		C	5.3						
GOES	26	1456	1513	1520						24		M	1.4						
GOES	26	1955	1959	2001						6		C	2.1						
PALE	26	2028	2028	2044	S13	E23	4033	12	28.6	16	SN	C	1.4	3	C		46		F
PALE	26	2037E	2051U	2114	S20	W51	4031	12	23.0	37D	SF			3	C		26		
PALE	26	2132	2133	2140	S17	E40	4039	12	29.9	8	SB	C	1.1	3	C		38		
PALE	26	2148	2157	2218	S20	W44	4031	12	23.5	30	SN	C	1.8	3	C		117		
HOLL	26	2149	2159	2215	S18	W44	4031	12	23.6	26	SN			3	C		106		
PALE	26	2233	2244	2348D	N07	W46	4032	12	23.5	75D	SF			3	C		78		
HOLL	26	2234	2241	2254	S16	E24	4033	12	28.8	20	SF	C	1.3	3	C		57		
PALE	26	2241	2241	2250	S12	E12	4033	12	27.8	9	SF			3	C		38		
LEAR	26	2337	2353	0016	S14	E21	4033	12	28.6	39	SF	C	2.1	3	C		51		FS
LEAR	27	0046	0047	0053	S13	E37	4039	12	29.8	7	SF			3	C		24		
PALE	27	0047E	0047U	0057	S13	E37	4039	12	29.8	10D	SF			3	C		34		
LEAR	27	0108	0111	0116	S18	E38	4039	12	29.9	8	SN			3	C		37		
PALE	27	0109E	0112U	0121D	S18	E38	4039	12	29.9	12D	SF			3	C		30		
LEAR	27	0121	0124	0130	S18	W45	4031	12	23.6	9	SF			3	C		34		
YUNN	27	0247	0250	0253	N08	W50		12	23.4	6	SN				C		32	.5	
LEAR	27	0249	0251	0258	N06	W49	4032	12	23.4	9	SF			3	C		80		
LEAR	27	0314	0317	0324	S10	E04	4033	12	27.4	10	SN			3	C		47		
LEAR	27	0524	0526	0541	S10	E02	4033	12	27.4	17	SB	C	3.1	3	C		92		
LEAR	27	0534	0546	0559	N08	W47	4032	12	23.7	25	SN			3	C		83		
LEAR	27	0755	0759	0835	N08	W48	4032	12	23.7	40	SF			3	C		45		K
LEAR	27	0755	0811	0835	N08	W48	4032	12	23.7	40	SF			3	C		37		K
LEAR	27	0817	0819	0835	S11	E01	4033	12	27.4	18	SF			3	C		31		H
LEAR	27	0848	0849	0852	S13	E33	4039	12	29.9	4	SF			3	C		22		
LEAR	27	0929	0942	1000	S14	E16	4033	12	28.6	31	SF	C	1.5	3	C		58		
GOES	27	1128	1138	1143						15		C	1.9						
GOES	27	1148	1151	1153						5		C	1.9						
RAMY	27	1427	1428	1531	N08	W52	4032	12	23.7	64	1B	C	4.8	3	C		166		
RAMY	27	1647	1647	1704	N08	W53	4032	12	23.7	17	SN	C	2.5	3	C		70		
RAMY	27	1702	1713	1729	S15	E13	4033	12	28.7	27	SF			3	C		38		
HOLL	27	1706	1715	1725	S16	E11	4033	12	28.5	19	SF			3	C		38		F
RAMY	27	1756	1801	1813	S14	E06	4033	12	28.2	17	SF			3	C		73		
HOLL	27	1759	1801	1811	S12	E05	4033	12	28.1	12	SF			3	C		55		
HOLL	27	1809	1811	1816	N09	W56	4032	12	23.6	7	SF			3	C		28		F
HOLL	27	1821	1823	1839	N09	W55	4032	12	23.6	18	SN	C	2.6	3	C		32		
HOLL	27	1903	1905	1917	N08	W56	4032	12	23.6	14	SF			3	C		15		F
HOLL	27	1920	1926	1938	N10	W55	4032	12	23.7	18	SF			3	C		17		
RAMY	27	1948	1948	2006	S12	E04	4033	12	28.1	18	SN			3	C		24		
HOLL	27	1948	1948	1953	S12	E04	4033	12	28.1	5	SN			3	C		24		
HOLL	27	1953	2009	2045	N09	W56	4032	12	23.6	52	SN			3	C		36		
HOLL	27	2020	2022	2036	S12	E04	4033	12	28.1	16	SB			3	C		125		E
RAMY	27	2021	2022	2052	S12	E04	4033	12	28.1	31	SB	C	9.3	3	C		172		
HOLL	27	2053	2055	2118	N09	W56	4032	12	23.7	25	SF			3	C		27		

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HOLL	27	2215	2218	2237	S12	W00	4033	12	27.9	22	SN	C 2.0	3	C		146		FH
HOLL	27	2259	2304	2318	N08	W72	4038	12	22.6	19	SF		3	C				
GOES	27	2333	2336	2340						7		C 1.4						
LEAR	28	0034	0038	0044	S12	E01	4033	12	28.1	10	SN		3	C		111		H
PEKG	28	0035	0038	0043	S12	E01		12	28.1	8	SN			C	0038	101	1.0	E
YUNN	28	0035	0038	0040	S11	E01		12	28.1	5	SN			C		32	.3	
PEKG	28	0043	0047	0102	S22	E13		12	29.0	19	SN			C	0047	88	1.0	E
YUNN	28	0045	0057	0107	S23	E11		12	28.9	22	SN			P		48	.5	
PEKG	28	0047E	0047	0050	N07	W61		12	23.5	3D	SF			P	0047	42	.9	D
PEKG	28	0113	0117	0127D	N05	W71		12	22.7	14D	SF			P	0117	34		D
LEAR	28	0123	0132	0144	N07	W59	4032	12	23.6	21	SF	C 2.7	3	C		51		F
PEKG	28	0127E	0127	0147D	N09	W60		12	23.6	20D	SN			P	0127	80	1.7	E
PEKG	28	0340	0342	0347	S12	W01		12	28.1	7	SN			C	0342	84	.9	D
GOES	28	0408	0412	0418						10		C 1.4						
LEAR	28	0505	0505	0516	N09	E79	4041	01	3.1	11	SF		3	C				
LEAR	28	0518	0520	0606	S19	E22	4039	12	29.9	48	SF	C 1.5	3	C		52		
PEKG	28	0540E	0540	0557	S20	E24		12	30.1	17D	SF			P	0540	84	1.0	E
LEAR	28	0610	0613	0625	N08	W64	4032	12	23.5	15	SF		3	C		46		
GOES	28	0710	0713	0718						8		C 2.2						
GOES	28	0834	0835	0846						12		C 2.2						
LEAR	28	0845E	0850	0855D	N08	W68	4032	12	23.3	10D	SN	C 2.8	3	C		14		
GOES	28	1158	1209	1212						14		C 3.1						
GOES	28	1245	1249	1251						6		C 1.9						
GOES	28	1551	1559	1620			4032			29		M 4.3						
HOLL	28	1604E	1605U	1621D	N06	W73	4032	12	23.2	17D	SN		3	C				
GOES	28	1703	1708	1718						15		C 1.5						
HOLL	28	1946	1958	2013	S19	W15		12	27.7	27	SN		3	C		43		F
PALE	28	2008	2009	2020	N08	W88	4032	12	22.2	12	SB		3	C				
GOES	28	2043	2046	2059						16		C 2.0						
HOLL	28	2251E	2251U	2307D	S08	W23	4033	12	27.2	16D	SN		3	C		45		F
HOLL	28	2304	2314	2340D	S18	W18		12	27.6	36D	SF		3	C		62		F
LEAR	28	2307	2313	2332	S18	W17		12	27.7	25	SF		3	C		64		
LEAR	29	0133	0137	0142	S19	W66	4031	12	24.0	9	SF		3	C		12		
LEAR	29	0137	0140	0202	N05	E70	4041	01	3.3	25	SN	C 5.8	3	C		45		F
LEAR	29	0147	0149	0152	S18	W19		12	27.6	5	SF		3	C		32		
LEAR	29	0351	0353	0358	S20	W19	4042	12	27.7	7	SF		3	C		33		FH
GOES	29	0423	0428	0436			4033			13		C 1.1						
LEAR	29	0431	0433	0438	S07	W15	4033	12	28.1	7	SF		3	C		44		F
LEAR	29	0514	0514	0522	S13	W11	4033	12	28.4	8	SF	C 1.2	3	C		47		
LEAR	29	0643	0645	0717	S13	W12	4033	12	28.4	34	2B	X 1.9	3	C		712		Z
YUNN	29	0644	0647	0705	S13	W13		12	28.3	21	2N			P		563	6.0	
LEAR	29	0737	0742	0754	S10	W28	4033	12	27.2	17	SN		3	C		85		F
PEKG	29	0741	0742	0745	S09	W29		12	27.1	4	SF			P	0742	50	.6	E
LEAR	29	0834	0838	0911	S10	W28	4033	12	27.3	37	SN		3	C		126		K
LEAR	29	0834	0904	0911	S10	W28	4033	12	27.3	37	1N	C 2.7	3	C		219		H K
YUNN	29	0835	0837		S10	W29		12	27.2		SN			C		145	1.7	
GOES	29	0857	0903	0905			4033			8		C 3.0						
YUNN	29	0900E	0900	0905	S09	W29		12	27.2	5D	1N			C		241	2.9	
GOES	29	1308	1314	1317						9		C 2.1						
GOES	29	1522	1525	1527						5		C 1.1						
RAMY	29	1717	1727	1727D	S13	W18	4033	12	28.4	10D	SB		3	C		124		
HOLL	29	1724	1728	1729D	S12	W19	4033	12	28.3	5D	SB		3	C		189		
GOES	29	1725	1729	1732						7		C 2.9						
GOES	29	1848	1853	1857						9		C 1.8						
HOLL	29	2008	2008	2040	N08	W90	4032	12	23.1	32	SB		3	C				
HOLL	29	2105	2109	2116	S17	W19	4033	12	28.4	11	SN		3	C		79		
HOLL	29	2142	2147	2151D	S09	W36	4033	12	27.2	9D	SN		3	C		53		
GOES	29	2142	2147	2152			4033			10		C 1.3						
PALE	29	2147E	2147U	2152	S12	W36	4033	12	27.2	5D	SN		3	C		35		
GOES	29	2234	2238	2243						9		C 1.4						
GOES	29	2307	2310	2323						16		C 1.8						
LEAR	29	2347	2349	0010	S09	W39	4033	12	27.1	23	SF	C 2.2	3	C		134		FH
LEAR	30	0123	0124	0130	S17	W32	4042	12	27.6	7	SN		3	C		37		
LEAR	30	0140	0147	0252	S13	W22	4033	12	28.4	72	2B	M 7.1	3	C		680		ZFK
LEAR	30	0140	0156	0252	S13	W22	4033	12	28.4	72	1B		3	C		428		K
YUNN	30	0140	0158	0238	S13	W23		12	28.3	58	1N			P		402	4.6	
PEKG	30	0141	0145	0208	S13	W22		12	28.4	27	1N			C	0145	294	3.3	F
MANI	30	0142E	0145	0147D	S12	W29		12	27.9	5D	SB		1	V		125	1.5	F

H - ALPHA SOLAR FLARES

DECEMBER 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp	Opt	Xray	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
YUNN	30	0604E	0606	0612	S09	W41		12	27.2	8D	1N				P		321	4.4	
LEAR	30	0604	0606	0616	S09	W40	4033	12	27.2	12	1F	C	2.3	3	C		280		H
GOES	30	0915	0918	0926						11		C	2.1						
WEND	30	1002	1004	1010	S10	W43		12	27.2	8	SF				C	1004	25	.4	
GOES	30	1014	1019	1024						10		C	1.8						
WEND	30	1017	1019	1027	N08	E51		01	3.3	10	SN				C	1019	38	.6	E
RAMY	30	1410	1412	1442	S14	W30	4033	12	28.3	32	SB	C	2.2	3	C		71		
GOES	30	1517	1521	1526						9		C	1.1						
RAMY	30	1739	1857U	1918	S12	W33	4033	12	28.2	99	1B	C	8.4	3	C		230		U
PALE	30	1835E	1846	1928	S11	W34	4033	12	28.2	53D	1B			3	C		223		K
GOES	30	1841	1846	1903			4033			22		C	9.8						
PALE	30	1844	1845	1854	S23	E14	4040	12	31.9	10	SF			3	C		20		
RAMY	30	1856	1900	1911	S27	E16	4040	01	1.0	15	SF			3	C		45		
PALE	30	2223	2227	2234D	S12	W36	4033	12	28.2	11D	SB	C	4.7	3	C		85		E
LEAR	30	2246E	2246U	2311	S13	W34	4033	12	28.4	25D	SN			3	C		69		F
LEAR	30	2258	2258	2308	S18	W39	4042	12	28.0	10	SF			3	C		23		
LEAR	30	2357	2359	0003	S09	W54	4033	12	26.9	6	SF			3	C		36		H
LEAR	31	0014	0020	0049	S13	W35	4033	12	28.4	35	1B	C	8.0	3	C		194		F
MANI	31	0025E	0025	0034D	S12	W44		12	27.7	9D	1B			1	V		220	3.2	F
YUNN	31	0028E	0028U	0036	S25	W22		12	29.3	8D	SN				P	0028	16	.2	
LEAR	31	0243	0245	0249	S10	W55	4033	12	27.0	6	SF			3	C		37		H
LEAR	31	0511	0514	0555	S15	W35	4033	12	28.6	44	SN	C	3.1	3	C		109		F
MANI	31	0514E	0517	0523D	S12	W40		12	28.2	9D	SF			1	V		90	1.2	F
PEKG	31	0514	0518	0545	S15	W36		12	28.5	31	SF				C	0518	67	.9	E
LEAR	31	0752	0755	0823	N09	E39	4041	01	3.3	31	SF	C	1.5	3	C		79		F
LEAR	31	0754	0756	0802	S16	W46	4042	12	27.8	8	SF			3	C		21		
LEAR	31	0845	0852	0922	S13	W40	4033	12	28.3	37	SF			3	C		69		F
LEAR	31	0849	0853	0918	N11	E38	4041	01	3.2	29	SF	C	1.4	3	C		27		F
GOES	31	0930	0933	0935						5		C	1.6						
GOES	31	1217	1224	1230						13		C	1.0						
PALE	31	1958	2002	2027D	S15	W65	4033	12	26.9	29D	SN	C	1.3	3	C		95		F K
PALE	31	1958	2019	2027D	S15	W65	4033	12	26.9	29D	SF			3	C		49		K
GOES	31	2055	2055	2059			4033			4		C	1.0						
GOES	31	2222	2230	2236						14		C	1.1						

"Remarks":

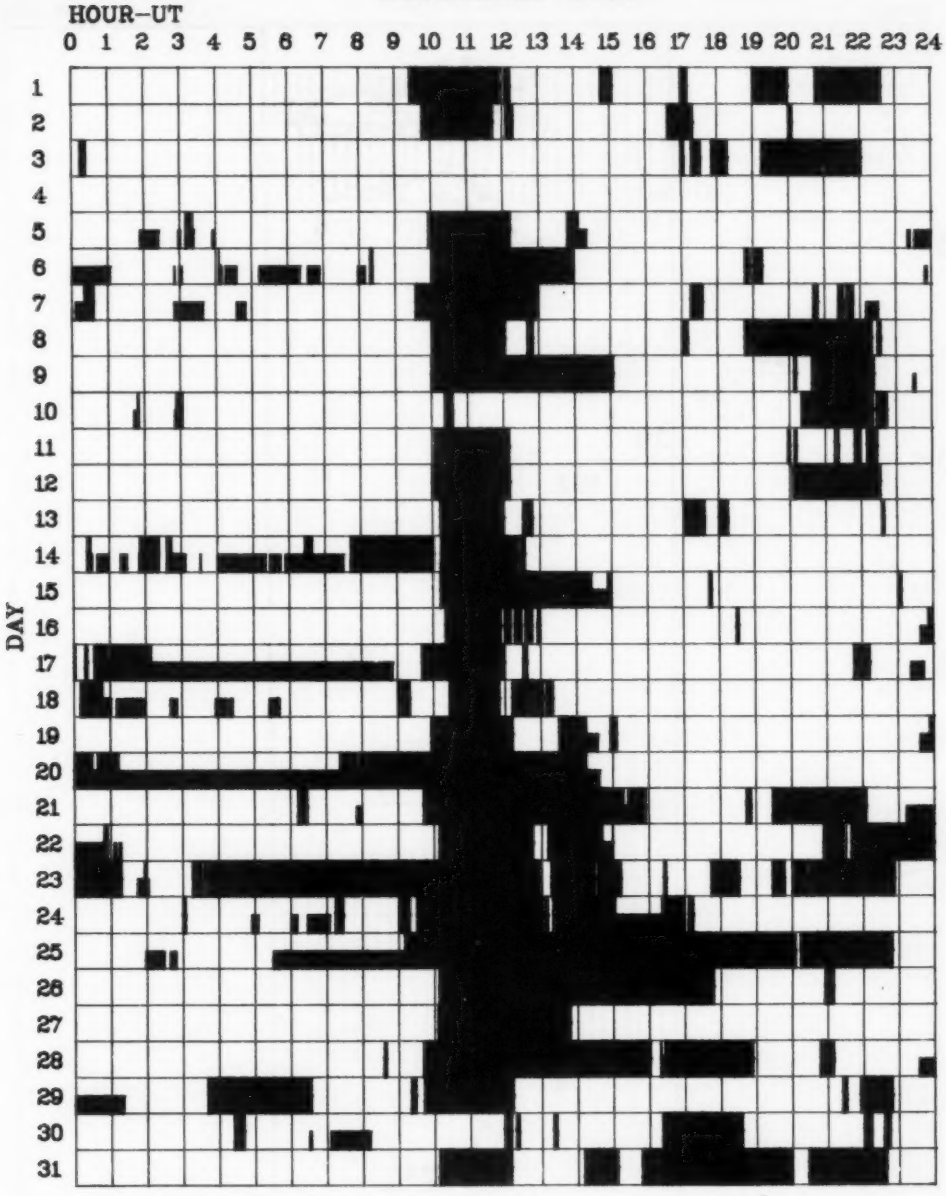
A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

The 4-digit number appearing under "Remarks" denotes the calcium plage region number assigned by the Space Environment Services Center in Boulder, Colorado.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

DECEMBER 1982



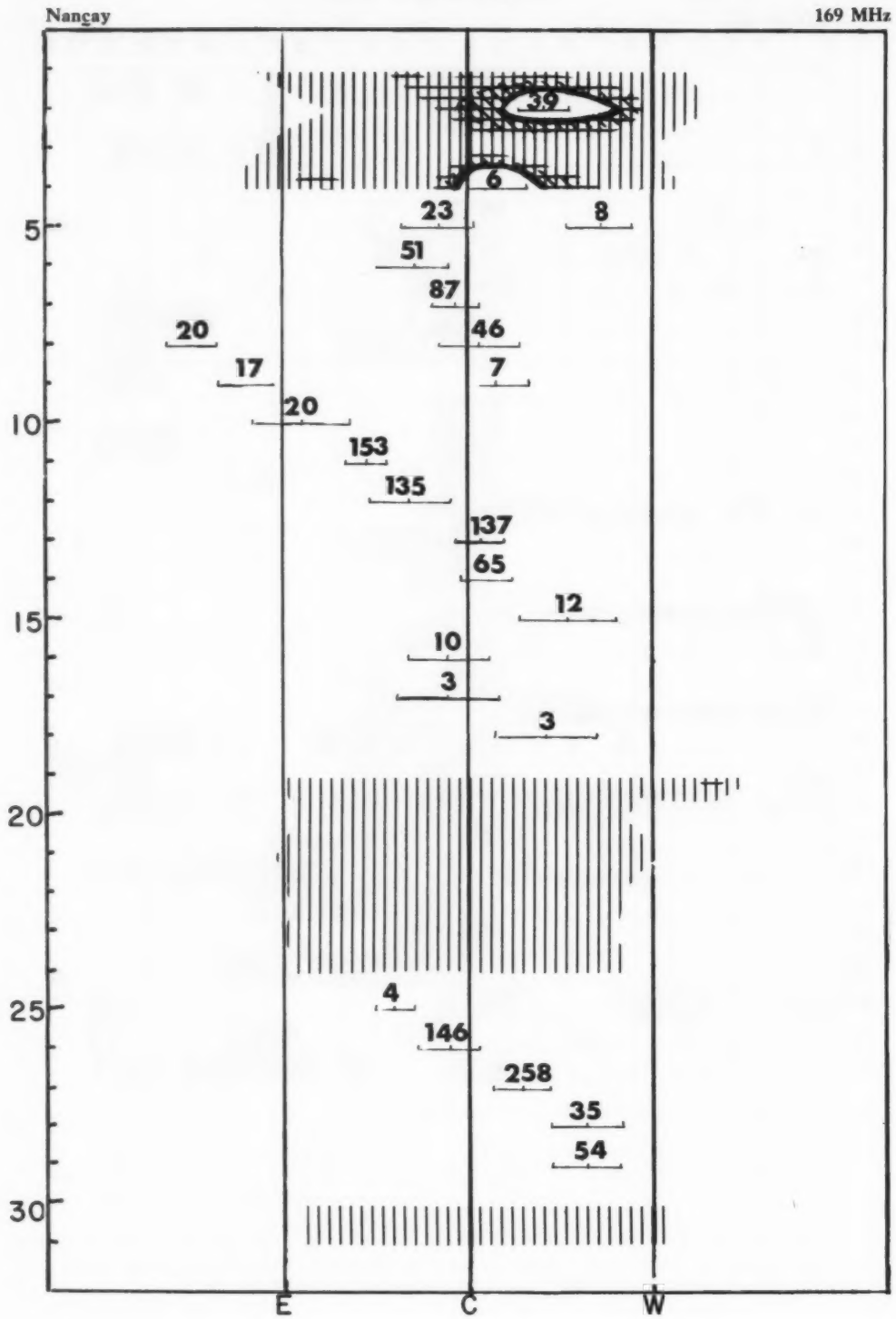
Observatories included in total patrol:

Bucharest	Istanbul	Manila	Palehua	Ramey
Holloman	Learmonth	Monte Mario	Peking	Wendelstein
			Purple Mt.	Yunnan

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

DECEMBER 1982

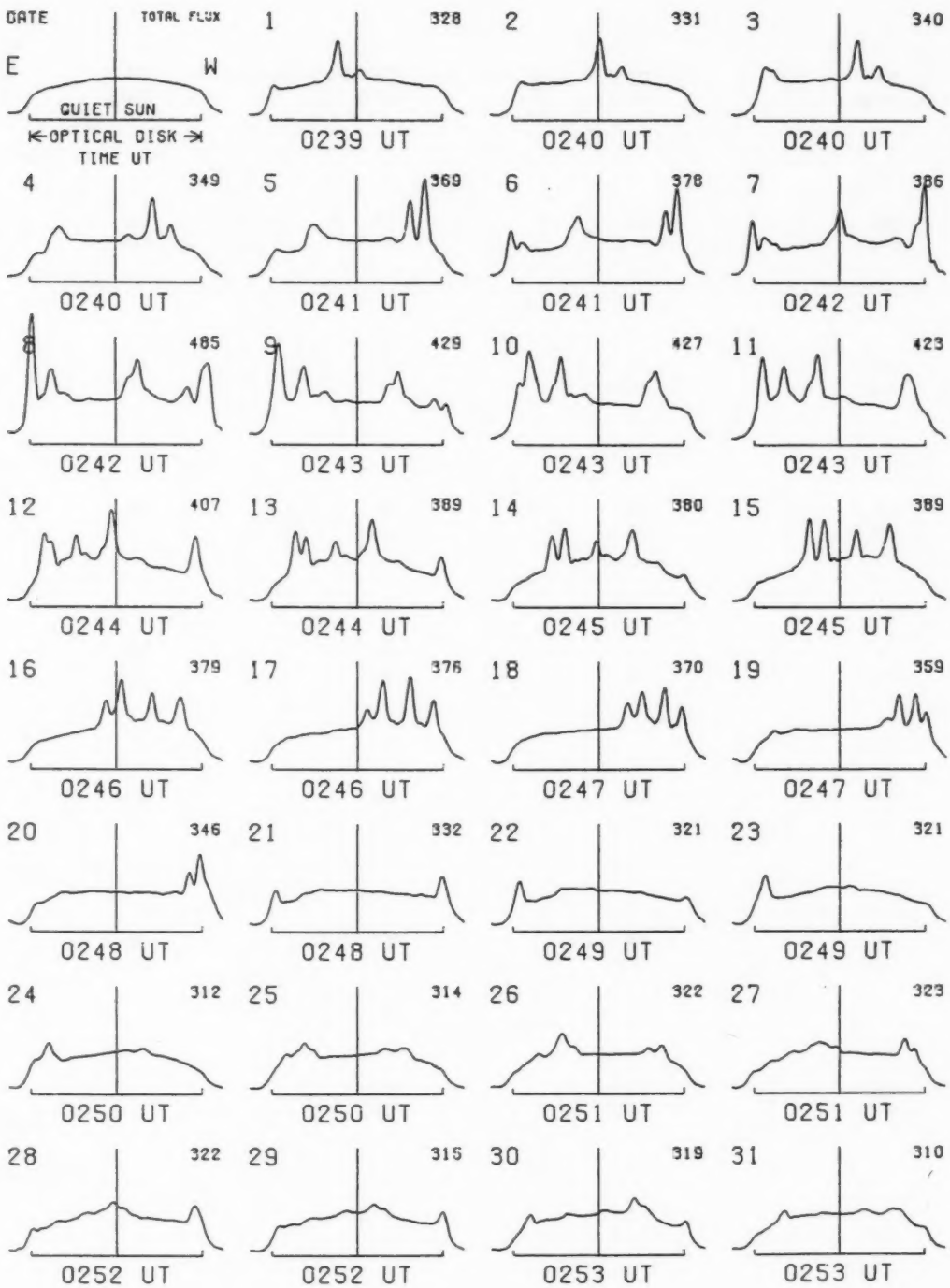


EAST-WEST SOLAR SCANS

DECEMBER 1982

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

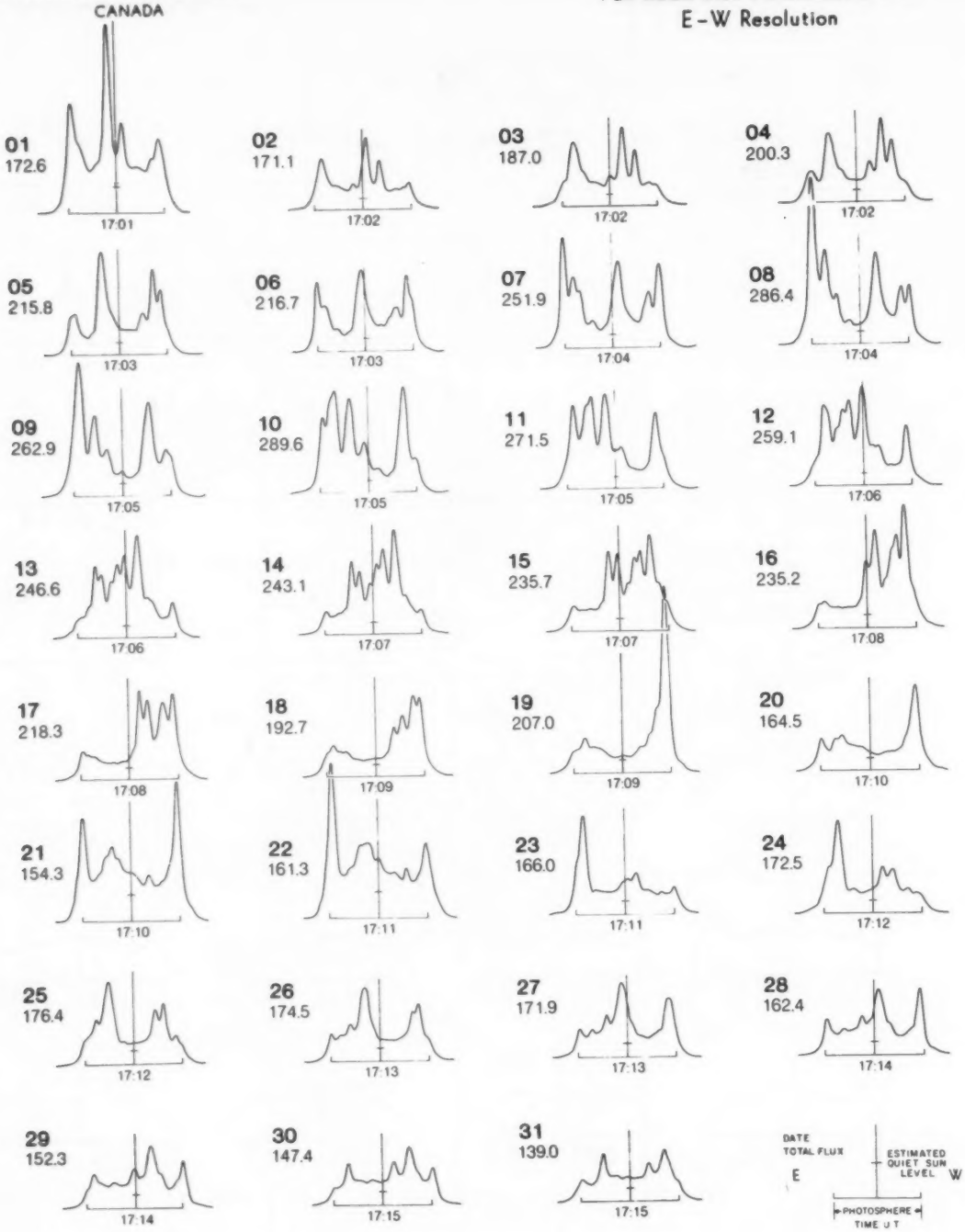


EAST-WEST SOLAR SCANS

DECEMBER 1982

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



EAST-WEST SOLAR SCANS

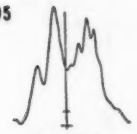
DECEMBER 1982

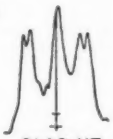
Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

Estimated Quiet Sun Level
Cold Sky Level

NO DATA DECEMBER 1-4, 6, 9, 14-31, 1982

01
02
03
04
05

0147 UT
E W

06
07

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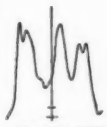
08

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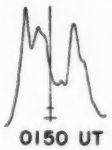
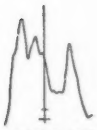
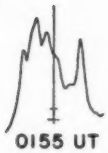
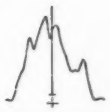
09
10

0150 UT
E W

11

0154 UT
12

0155 UT
13

0151 UT
14
15
E W

16
17
18
19
20
E W

21
22
23
24
25
E W

26
27
28
29
30
E W

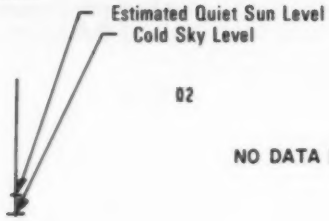
31
E W

EAST-WEST SOLAR SOLAR SCANS

Fleurs, Australia

DECEMBER 1982

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



NO DATA DECEMBER 1-4, 6, 9, 14-31, 1982

01	02	03	04	05
E				0147 UT W
06	07	08	09	10
E	0148 UT	0149 UT		0149 UT W
11	12	13	14	15
E 0150 UT	0150 UT	0145 UT		W
16	17	18	19	20
E				W
21	22	23	24	25
E				W
26	27	28	29	30
E				W
31				
E				W

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
01	8800	LEAR	8	S	0010.8	0011.0	.3	19.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1810.0	1825.0	65.0	2.8	1.9		
	2800	OTTA	20	GRF	2020.0	2040.0	55.0	3.0	1.8		
02	2695	LEAR	8	S	0010.3	0010.8	.7	21.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0259.1	0259.8	1.0	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0259.5	0259.6	.3	13.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0322.3	0324.6	9.5	7.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0542.3	0542.3	.5	42.0			QL=6 ST=2 TYP=3
	2695	LEAR	47	GB	0542.3	0542.5	.3	91.0			QL=6 ST=3 TYP=5
	2695	LEAR	20	GRF	0641.5	0647.3	11.1	17.0			QL=6 ST=2 TYP=2
	2800	OTTA	20	GRF	1515.0	1525.0	35.0	6.0	2.2		
	2800	OTTA	240	R	1730.0	1736.0	6.0	7.0	4.0		
	2800	OTTA	23	GRF	1738.0	1742.0	110.0	15.8	8.0		
	2800	OTTA	40	F	1742.5	1743.0	5.0	6.0			
	2695	SGMR	8	S	1810.6	1810.8	1.2	18.0			QL=6 ST=2 TYP=3
	2695	PENT	4	S/F	2108.0	2111.8	9.0	50.0	23.0		
	2695	PENT	29	PBI	2117.0	2117.0	13.0	7.4			
	2695	LEAR	4	S/F	2311.3	2312.0	2.7	21.0			QL=6 ST=2 TYP=3
03	8800	LEAR	8	S	0115.8	0115.8	1.0	27.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0302.8	0303.1	1.7	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0900.8	0901.8	12.3	31.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0901.5	0903.8	5.6	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1750.0	1815.0	70.0	3.0	2.1		
	2800	OTTA	20	GRF	1935.0	2000.0	65.0	3.2	1.6		
	2695	PENT	1	S	2142.0	2143.0	2.5	8.2	4.0		
	8800	LEAR	4	S/F	2249.8	2250.1	2.5	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	2300.3	2300.6	6.3	90.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	2300.5	2300.6	3.5	20.0			QL=6 ST=2 TYP=3
04	8800	LEAR	4	S/F	0046.5	0047.0	3.3	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0330.8	0333.0	4.3	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0527.1	0527.8	3.5	33.0			QL=5 ST=3 TYP=3
	2695	LEAR	8	S	0527.8	0527.8	1.0	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	20	GRF	0754.6	0847.1	65.2	25.0			QL=6 ST=2 TYP=2
	8800	LEAR	20	GRF	0755.0	0810.6	54.8	10.0			QL=5 ST=3 TYP=2
	8400	BERN	4	S/F	0913.2	0914.7	23.0	67.0			ONLY PAPER REC
	2695	LEAR	8	S	1012.1	1012.3	.4	6.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	1012.1	1012.3	.4	13.0			QL=5 ST=2 TYP=3
	2800	OTTA	27	RF	1345.0		100.0	4.0	3.5		
	2800	OTTA	24	R	1345.0	1400.0	15.0	4.0	2.0		
	2800	OTTA	24P	R	1400.0		75.0	4.0			
	2800	OTTA	26	FAL	1515.0	1525.0	10.0	-4.0	-2.0		
	2800	OTTA	21	GRF	1620.0	1625.0	25.0	3.6	1.8		
	2800	OTTA	3	S	1629.0	1630.0	3.5	12.4	4.2		
	2800	OTTA	8	S	1714.0	1714.3	.8	5.8	2.6		
	2800	OTTA	20	GRF	1745.0	1805.0	40.0	2.4	1.6		
	2800	OTTA	20	GRF	1940.0	2015.0	35.0D	4.4	2.2		
05	2695	LEAR	8	S	0256.8	0257.1	.8	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0325.8	0326.8	1.7	8.0			QL=5 ST=3 TYP=3
	8800	LEAR	20	GRF	0424.8	0445.8	89.2	20.0			QL=6 ST=2 TYP=2
	2695	LEAR	20	GRF	0750.0	0815.0	100.0	15.0			QL=6 ST=2 TYP=2
	8400	BERN	4	S/F	1001.1	1002.1	40.0	343.0			
	2800	OTTA	20	GRF	1435.0	1700.0	275.0	14.0	6.8		
	2800	OTTA	240	R	1920.0	1945.0	25.0	5.0	2.5		
	8800	SGMR	47	GB	1958.8	1959.0	.5	77.0			QL=6 ST=2 TYP=5
	2800	OTTA	20	GRF	2035.0	2040.0	65.0	6.4			
06	8400	BERN	3	S	0810.0	0812.2	9.0	61.0			ONLY PAPER REC
	8800	LEAR	47	GB	0810.8	0812.3	9.3	70.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	0810.8	0812.3	2.5	27.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0810.8	0812.5	5.5	22.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	0811.0	0812.5	2.8	19.0			QL=2 ST=2 TYP=3
	8800	ATHN	4	S/F	0937.5	0938.3	3.5	30.0			QL=6 ST=3 TYP=3
	8800	LEAR	47	GB	0938.8	0939.5	4.0	64.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	0952.5	0953.3	2.1	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0952.8	0953.5	1.8	27.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1415.0	1532.0	175.0	9.6	4.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
06	2800	OTTA	1	S	1544.0	1545.0	6.0	4.2	1.6		
	2800	OTTA	240	R	2010.0	2035.0	25.0	9.0	3.0		
	2695	PENT	21	GRF	2105.0	2118.0	30.0	8.2	4.4		
	2695	PENT	46F	C	2105.5	2106.7	3.7	61.0	14.0		
	2695	PENT	8	S	2111.0	2111.2	.3	4.0	2.0		
	2695	PENT	46F	C	2112.3	2112.9	2.5	40.0	10.0		
	8800	LEAR	8	S	2329.8	2330.1	.7	21.0			QL=4 ST=2 TYP=3
07	8800	LEAR	47	GB	0208.8	0209.1	1.8	51.0			QL=5 ST=2 TYP=5
	8800	LEAR	47	GB	0219.6	0221.1	6.0	139.0			QL=5 ST=2 TYP=5
	8800	LEAR	20	GRF	0412.6	0421.1	27.4	17.0			QL=5 ST=2 TYP=2
	8800	LEAR	4	S/F	0536.1	0537.8	9.0	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0536.1	0537.8	6.2	9.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0546.3	0547.3	3.0	7.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0554.8	0555.6	2.5	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0700.8	0701.0	1.0	11.0			QL=6 ST=3 TYP=3
	8800	LEAR	8	S	0809.3	0809.6	1.2	13.0			QL=6 ST=2 TYP=3
	8800	SGMR	47	GB	1317.3	1320.0	14.0	58.0			QL=6 ST=2 TYP=5
	2695	SGMR	4	S/F	1416.6	1417.5	2.5	11.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1420.0	1440.0	85.0	6.0			
	2800	OTTA	40	F	1423.0	1427.0	8.0	4.4			
	8800	SGMR	47	GB	1510.1	1510.3	.9	50.0			QL=5 ST=2 TYP=5
	2695	SGMR	47	GB	1510.1	1510.3	.7	86.0			QL=6 ST=2 TYP=5
	2800	OTTA	20	GRF	1550.0	1555.0	30.0	5.2	2.6		
	2800	OTTA	4	S/F	1748.5	1749.0	3.0	18.2	7.0		
	2695	SGMR	8	S	1748.6	1749.0	1.5	30.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1800.0	1808.0	80.0	8.6	4.0		
08	8800	LEAR	4	S/F	0249.3	0250.1	9.0	49.0			QL=5 ST=2 TYP=3
	2695	LEAR	8	S	0306.1	0306.1	.7	29.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0615.8	0616.8	1.5	25.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0817.8	0818.0	.3	30.0			QL=3 ST=2 TYP=3
	8800	LEAR	47	GB	0827.0	0830.1	16.1	50.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	0827.8	0835.0	13.5	49.0			QL=6 ST=3 TYP=3
	2695	LEAR	8	S	0901.8	0902.1	.7	17.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0901.8	0902.1	1.0	20.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0939.1	0939.3	.4	21.0			QL=6 ST=2 TYP=3
	8800	ATHN	47	GB	1108.8	1112.8	22.8	52.0			QL=6 ST=3 TYP=5
	8400	BERN	47	GB	1323.0	1445.7	90.00	1209.0			
	2695	ATHN	47	GB	1324.6	1338.6	47.4	150.0			QL=2 ST=3 TYP=5
	2800	OTTA	47	GB	1326.0	1447.0	124.0	2280.0			
	8800	ATHN	47	GB	1331.3	1338.6	40.7	290.0			QL=6 ST=3 TYP=5
	8800	SGMR	49	GB	1335.6	1338.5	14.5	470.0			QL=6 ST=2 TYP=6
	2695	SGMR	47	GB	1336.5	1338.6	13.6	139.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	1350.1	1350.1	22.0	330.0			QL=6 ST=2 TYP=5
	8800	SGMR	49	GB	1350.1	1352.3	22.0	520.0			QL=6 ST=2 TYP=6
	2695	SGMR	47	GB	1412.1	1414.6	13.0	88.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1412.1	1414.6	13.0	119.0			QL=6 ST=2 TYP=5
	2695	ATHN	49	GB	1421.5	1427.3	44.0	670.0			QL=2 ST=2 TYP=6
	8800	ATHN	49	GB	1421.5	1430.3	44.0	210.0			QL=2 ST=2 TYP=6
	2695	SGMR	49	GB	1425.1	1427.3	12.4	730.0			QL=6 ST=2 TYP=6
	8800	SGMR	47	GB	1425.1	1427.6	12.4	300.0			QL=6 ST=2 TYP=5
	2695	SGMR	49	GB	1437.5	1438.1	26.0	680.0			QL=6 ST=2 TYP=6
	8800	SGMR	49	GB	1437.5	1438.1	26.0	530.0			QL=6 ST=2 TYP=6
	2695	SGMR	47	GB	1503.5	1503.6	20.8	200.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1503.5	1503.6	17.5	100.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	1524.3	1524.6	21.7	89.0			QL=6 ST=2 TYP=5
	2800	OTTA	30	PBI	1530.0	1530.0	390.0	81.0	25.6		
	2695	SGMR	47	GB	1546.0	1546.6	23.1	71.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	1609.1	1610.8	29.9	92.0			QL=6 ST=2 TYP=5
	2800	OTTA	21	GRF	1935.0	1940.0	50.0	7.6	3.5		
	2800	OTTA	1	S	1936.5	1937.0	1.5	7.0	3.5		
	2695	PENT	1	S	2011.0	2011.5	2.0	5.8	2.9		
	8800	LEAR	8	S	2335.8	2336.8	1.3	16.0			QL=6 ST=2 TYP=3
	2695	LEAR	49	GB	2337.1	0000.8	79.0	5400.0			QL=6 ST=2 TYP=7
	8800	LEAR	49	GB	2337.1	2358.1	103.5	20000.0			QL=5 ST=2 TYP=7
	8800	LEAR	8	S	2342.8	2343.1	.7	18.0			QL=6 ST=2 TYP=3
09	2695	LEAR	8	S	0018.6	0018.8	.4	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0018.6	0018.8	.5	32.0			QL=5 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Mean	Int	Remarks
09	8800	LEAR	8	S	0023.8	0024.0	.3	11.0			QL=5 ST=2 TYP=3
	2695	LEAR	8	S	0032.3	0032.5	.5	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0032.3	0032.5	.5	26.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0042.8	0042.8	.3	20.0			QL=5 ST=2 TYP=3
	2695	LEAR	8	S	0042.8	0042.8	.3	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0223.0	0257.3	84.0	57.0			QL=5 ST=2 TYP=5
	2695	LEAR	4	S/F	0239.6	0257.3	65.4	20.0			QL=6 ST=2 TYP=3
	8800	LEAR	20	GRF	0840.0	0841.1	12.8	40.0			QL=6 ST=2 TYP=2
	8800	ATHN	4	S/F	0841.1	0844.5	7.9	5.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0935.3	0938.5	9.3	69.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0935.6	0936.5	5.9	13.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0935.8	0938.3	9.3	30.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	1039.3	1039.8	5.7	11.0			QL=2 ST=2 TYP=3
	8800	ATHN	4	S/F	1039.3	1041.8	8.2	11.0			QL=6 ST=2 TYP=3
	2695	ATHN	47	GB	1124.1	1126.5	20.9	53.0			QL=2 ST=3 TYP=5
	8800	ATHN	47	GB	1124.3	1124.6	20.7	130.0			QL=6 ST=3 TYP=5
	2800	OTTA	22	GRF	1340.0	1348.0	85.0	16.2			
	8800	SGMR	4	S/F	1348.0	1350.3	2.5	27.0			QL=6 ST=2 TYP=3
	8800	SGMR	4	S/F	1351.3	1353.5	6.3	30.0			QL=6 ST=2 TYP=3
	8800	ATHN	47	GB	1403.1	1404.3	5.0	70.0			QL=6 ST=2 TYP=5
	8400	BERN	4	S/F	1403.2	1404.1	5.0	97.0			
	2695	ATHN	4	S/F	1403.3	1404.0	4.2	26.0			QL=2 ST=2 TYP=3
	8800	SGMR	47	GB	1403.3	1404.1	2.5	110.0			QL=6 ST=2 TYP=5
	2800	OTTA	32	ABS	1600.0	1610.0	23.0	6.0	3.2		
	2800	OTTA	1	S	1633.0	1634.3	2.0	6.4	3.2		
	2800	OTTA	4	S/F	1733.0	1737.0	8.0	129.0	43.0		
	2695	SGMR	47	GB	1735.5	1737.0	7.8	130.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1735.8	1737.1	30.5	139.0			QL=6 ST=2 TYP=5
	2800	OTTA	30	PBI	1741.0	1741.0	95.0	19.8	5.0		
	2800	OTTA	4	S/F	1746.0	1746.4	1.0	21.4	7.2		
	8800	SGMR	8	S	1902.5	1902.8	1.0	46.0			QL=6 ST=2 TYP=3
	2695	PENT	4	S/F	2135.0	2145.5	23.0	314.0	96.0		
	2695	LEAR	49	GB	2145.3E	2145.8	10.3D	840.0			QL=4 ST=3 TYP=6
	8800	LEAR	49	GB	2145.3E	2145.8	11.7D	1100.0			QL=4 ST=3 TYP=6
	2695	PENT	29	PBI	2158.0	2158.0	30.0D	49.0			
	8800	LEAR	4	S/F	2316.8	2317.3	5.8	22.0			QL=6 ST=2 TYP=3
10	8800	LEAR	47	GB	0017.3	0019.8	8.8	58.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0154.6	0159.8	20.7	24.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0157.1	0159.3	16.9	87.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0235.1	0241.0	33.9	340.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0239.0	0240.8	31.3	61.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0401.0	0406.3	19.0	50.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0403.5	0406.3	16.5	53.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0420.0	0442.6	29.3	160.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0420.0	0443.1	29.3	110.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	0758.3	0759.8	3.0	26.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0759.1	0759.6	1.0	36.0			QL=6 ST=2 TYP=3
	2695	ATHN	8	S	0759.1	0800.0	2.0	23.0			QL=2 ST=2 TYP=3
	8800	LEAR	8	S	0759.3	0759.6	.3	37.0			QL=5 ST=2 TYP=3
	8800	ATHN	8	S	0804.5	0805.1	1.5	8.0			QL=6 ST=2 TYP=3
	8800	ATHN	8	S	1156.0	1156.6	2.0	24.0			QL=6 ST=2 TYP=3
	2695	SGMR	4	S/F	1317.8	1321.0	5.7	31.0			QL=6 ST=2 TYP=3
	2695	ATHN	20	GRF	1317.8	1321.0	8.2	7.0			QL=2 ST=2 TYP=2
	8800	ATHN	20	GRF	1318.0	1320.6	8.0	21.0			QL=6 ST=2 TYP=2
	2800	OTTA	21	GRF	1320.0	1350.0	90.0	18.8	9.8		
	2695	SGMR	4	S/F	1327.1	1329.5	3.4	20.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1328.6	1329.1	1.0	46.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1350.1	1351.0	2.0	28.0			QL=6 ST=3 TYP=3
	2800	OTTA	3	S	1350.2	1351.0	2.2	17.2	8.0		
	2695	ATHN	8	S	1350.3	1351.1	2.0	7.0			QL=2 ST=2 TYP=3
	8800	ATHN	4	S/F	1350.5	1351.0	2.1	24.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1350.6	1351.0	.7	31.0			QL=6 ST=3, TYP=3
	2800	OTTA	27A	RF	1606.0		114.0	11.4	4.7		
	2800	OTTA	24	R	1606.0	1610.0	4.0	11.4	5.4		
	2800	OTTA	24P	R	1610.0		85.0	11.4			
	2695	SGMR	8	S	1610.8	1611.1	.8	19.0			QL=6 ST=2 TYP=3
	2800	OTTA	40	F	1611.0	1615.2	17.0	17.4			
	8800	SGMR	4	S/F	1611.0	1612.5	8.5	21.0			QL=6 ST=2 TYP=3
	2800	OTTA	8	S	1731.0	1731.2	.8	14.3	5.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
10	2800	OTTA	26	FAL	1735.0	1800.0	25.0	-11.4	-6.6		
	8800	SGMR	4	S/F	1747.5	1747.8	2.5	37.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1816.6	1816.8	.7	40.0			QL=6 ST=2 TYP=3
	2800	OTTA	22	GRF	1817.0	1833.0	135.0	11.4	5.7		
	2800	OTTA	8	S	2032.8	2032.9	.2	2.8			
	2695	PENT	4	S/F	2206.0	2209.5	6.0	48.0	15.0		
11	8800	LEAR	8	S	0016.3	0016.8	.8	16.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0030.8	0032.0	4.5	33.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0031.3	0033.1	4.0	27.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0114.1	0114.5	.5	17.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0141.1	0141.5	.7	26.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0141.1	0141.8	.7	4.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0248.8	0249.1	.5	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	49	GB	0311.1	0311.6	1.2	520.0			QL=6 ST=2 TYP=6
	8800	LEAR	4	S/F	0311.1	0311.6	2.5	11.0			QL=5 ST=2 TYP=3
	8800	LEAR	4	S/F	0356.6	0357.1	3.0	10.0			QL=5 ST=2 TYP=3
	8800	LEAR	49	GB	0437.8	0441.5	21.2	640.0			QL=6 ST=2 TYP=6
	2695	LEAR	47	GB	0438.8	0441.5	7.0	280.0			QL=6 ST=2 TYP=5
	8800	LEAR	49	GB	0459.0	0459.1	18.1	640.0			QL=6 ST=2 TYP=6
	2695	LEAR	47	GB	0459.0	0459.1	1.3	280.0			QL=6 ST=2 TYP=5
	2695	LEAR	8	S	0544.1	0544.5	.7	32.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0544.3	0544.5	.5	46.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0550.1	0550.3	.7	29.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0948.1	0951.1	7.0	15.0			QL=6 ST=2 TYP=3
	2695	LEAR	47	GB	0949.8	0950.6	1.5	66.0			QL=6 ST=2 TYP=5
	2695	ATHN	47	GB	0950.1	0951.1	3.5	54.0			QL=2 ST=2 TYP=5
	2800	OTTA	21	GRF	1330.0	1440.0	230.00	17.0			
	2800	OTTA	8	S	1431.5	1431.5	.5	4.6	2.3		
	2800	OTTA	3	S	1536.3	1536.9	2.0	22.0	7.2		
	2800	OTTA	20	GRF	1546.0	1549.0	15.0	5.6	2.8		
	2800	OTTA	8	S	1809.2	1809.2	.1	5.6			
	8800	PALE	8	S	1834.1	1834.8	1.2	24.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1910.0	1920.0	45.0	3.0	2.0		
	2800	OTTA	1	S	1932.0	1934.0	5.0	2.8	1.4		
	2695	PENT	20	GRF	2055.0	2115.0	95.0	13.0	8.9		
	8800	LEAR	4	S/F	2338.3	2338.8	2.3	44.0			QL=5 ST=3 TYP=3
	2695	LEAR	8	S	2338.8	2338.8	.3	11.0			QL=6 ST=2 TYP=3
12	8800	PALE	47	GB	0142.1	0143.5	5.9	139.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0145.6	0146.3	4.7	130.0			QL=5 ST=2 TYP=5
	2695	LEAR	4	S/F	0146.1	0146.3	3.4	22.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0248.1	0249.0	3.4	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0248.8	0250.1	2.8	11.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0459.5	0459.8	.6	30.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0504.6	0505.0	1.4	27.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0630.0	0630.3	.5	18.0			QL=5 ST=2 TYP=3
	8800	LEAR	4	S/F	0638.1	0640.0	6.0	39.0			QL=5 ST=2 TYP=3
	8400	BERN	3	S	1155.3	1156.4	4.0	37.0			ONLY PAPER REC
	8800	SGMR	8	S	1322.3	1322.5	.5	47.0			QL=6 ST=2 TYP=3
	2695	SGMR	47	GB	1322.3	1322.5	1.3	62.0			QL=6 ST=2 TYP=5
	2800	OTTA	3	S	1322.5	1322.7	2.0	42.6	11.0		
	2800	OTTA	20	GRF	1958.0	2000.0	15.0	3.2	1.5		
	2695	PENT	1	S	2224.0	2224.2	2.0	5.4	2.7		
13	8800	LEAR	8	S	0022.8	0023.6	1.8	8.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0139.1	0139.5	3.9	23.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0236.1	0236.8	8.5	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0303.1	0304.6	3.5	8.0			QL=6 ST=2 TYP=3
	8800	LEAR	49	GB	0321.5	0325.6	24.0	1600.0			QL=6 ST=2 TYP=7
	2695	LEAR	49	GB	0323.6	0325.8	16.7	219.0			QL=6 ST=2 TYP=7
	2695	ATHN	47	GB	0802.8	0805.1	11.8	83.0			QL=2 ST=2 TYP=5
	8800	LEAR	47	GB	0802.8	0806.5	37.5	420.0			QL=6 ST=2 TYP=5
	8400	BERN	45	C	0803.0	0807.1	23.0	433.0			
	2695	LEAR	47	GB	0803.1	0807.1	9.9	139.0			QL=6 ST=2 TYP=5
	8800	ATHN	47	GB	0803.3	0804.8	14.7	139.0			QL=6 ST=2 TYP=5
	2800	OTTA	3	S	1802.0	1803.0	3.0	38.0	13.0		
	8800	SGMR	8	S	1802.6	1802.8	.7	49.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1802.6	1803.0	1.2	33.0			QL=6 ST=2 TYP=3
	2800	OTTA	29	PBI	1805.0	1805.0	13.0	5.6	2.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
13	2800	OTTA	20	GRF	1850.0	1900.0	30.0	4.4	2.2		
	2800	OTTA	46F	C	1951.5	1955.0	9.5	90.0	57.0		
	8800	SGMR	47	GB	1951.6	1952.0	9.4	480.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	1951.6	1952.0	8.7	60.0			QL=6 ST=2 TYP=5
	2800	OTTA	30	PBI	2001.0	2001.0	40.0	13.4	5.0		
	2695	PENT	20	GRF	2011.0	2014.0	11.0	6.6	3.3		
	2695	PENT	20	GRF	2100.0	2117.0	60.0	10.0	5.0		
14	8800	LEAR	4	S/F	0000.1	0000.6	6.7	18.0			QL=6 ST=2 TYP=3
	8800	PALE	47	GB	0129.1	0129.6	4.2	210.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0733.6	0733.8	2.7	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0733.6	0733.8	2.0	30.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	0734.6	0740.8	12.0	45.0			QL=2 ST=2 TYP=3
	8800	ATHN	4	S/F	0734.6	0740.8	15.0	37.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0737.8	0739.6	9.0	100.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0738.1	0740.1	8.7	53.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0829.6	0829.8	2.5	13.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0834.1	0834.6	1.5	20.0			QL=6 ST=2 TYP=3
	8800	SGMR	47	GB	1256.0	1256.6	1.1	400.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	1303.8	1307.5	6.7	27.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	1306.6	1307.5	3.5	41.0			QL=2 ST=2 TYP=3
	2695	SGMR	8	S	1306.8	1307.1	.5	30.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1306.8	1307.1	.5	20.0			QL=6 ST=2 TYP=3
	8400	BERN	8	S	1307.0	1307.2	1.0	20.0			ONLY PAPER REC
	2800	OTTA	3	S	1418.0	1419.0	7.0	13.4	4.5		
	2800	OTTA	3	S	1618.7	1619.1	3.0	15.0	4.0		
	2800	OTTA	1	S	1641.0	1643.8	6.0	6.4	3.0		
	2800	OTTA	20	GRF	1840.0	1843.0	40.0	8.2	3.5		
	2800	OTTA	4	S/F	2010.0	2022.5	27.0	126.0	60.0		
	8800	PALE	47	GB	2014.3	2015.5	10.0	30.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	2014.3	2015.5	4.3	53.0			QL=6 ST=2 TYP=5
	8800	PALE	47	GB	2024.3	2024.5	3.2	53.0			QL=6 ST=2 TYP=5
	2800	OTTA	30	PBI	2037.0	2037.0	48.0	9.6	4.8		
	2800	OTTA	20	GRF	2050.0	2053.0	17.0	16.4	8.2		
	2695	PENT	22	GRF	2140.0	2147.0	70.0D	26.0			
	8800	LEAR	8	S	2349.5	2349.8	1.8	11.0			QL=6 ST=2 TYP=3
15	8800	LEAR	49	GB	0156.6	0201.5	27.5	9400.0			QL=6 ST=2 TYP=7
	2695	LEAR	49	GB	0157.6	0200.6	20.2	7300.0			QL=6 ST=2 TYP=7
	8800	PALE	8	S	0237.8	0237.8	.5	20.0			QL=6 ST=2 TYP=3
	8400	BERN	3	S	1319.0	1320.0	6.0	23.0			
	8800	ATHN	4	S/F	1319.1	1320.3	7.0	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1535.0	1543.0	18.0	4.2	2.4		
	2800	OTTA	3	S	1600.0	1602.2	7.0	10.6	3.6		
	2800	OTTA	47	GB	1627.0	1632.2	19.0	790.0	132.0		
	8800	SGMR	49	GB	1627.8	1631.3	17.8	3000.0			QL=6 ST=2 TYP=7
	2695	SGMR	49	GB	1627.8	1632.0	14.0	840.0			QL=6 ST=2 TYP=7
	2800	OTTA	260	FAL	1647.0	1655.0	8.0	-5.2	-2.6		
	2800	OTTA	20	GRF	1705.0	1707.0	25.0	13.8			
	2800	OTTA			1735.0		55.0	4.2	2.4		
	8800	PALE	8	S	1746.1	1746.3	.7	22.0			QL=6 ST=2 TYP=3
	2800	OTTA	3	S	1756.0	1757.6	6.0	27.6	7.2		
	2695	PENT	20	GRF	2020.0	2050.0	55.0	6.0	3.0		
	8800	PALE	47	GB	2046.5	2046.8	1.1	64.0			QL=6 ST=2 TYP=5
	2695	PENT	4	S/F	2145.0	2151.5	15.0	174.0	56.4		
	8800	PALE	49	GB	2148.6	2151.6	15.9	520.0			QL=6 ST=2 TYP=6
	8800	LEAR	47	GB	2149.0E	2151.0	6.0D	150.0			QL=4 ST=3 TYP=5
	2695	LEAR	47	GB	2149.0E	2151.0	6.0D	100.0			QL=4 ST=3 TYP=5
	2695	PENT	29	PBI	2200.0	2200.0	40.0D	27.0			
	8800	LEAR	8	S	2251.3	2251.3	.3	24.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	2251.3	2251.3	.3	29.0			QL=6 ST=2 TYP=3
16	8800	LEAR	4	S/F	0100.3	0100.3	3.0	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0312.8	0312.8	.7	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	49	GB	1003.3	1006.1	6.0	380.0			QL=6 ST=2 TYP=7
	8400	BERN	47	GB	1003.7	1006.4	30.0	1480.0			
	8800	LEAR	49	GB	1003.8	1006.3	6.5	1300.0			QL=5 ST=3 TYP=7
	2800	OTTA	21	GRF	1355.0	1640.0	300.0	19.0	9.5		
	2800	OTTA	3	S	1418.0	1421.0	9.0	460.0	114.0		
	8400	BERN	47	GB	1418.0	1502.3	50.0D	1106.0			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
16	8800	SGMR	47	GB	1418.3	1420.5	8.5	330.0			QL=6 ST=2 TYP=5
	2695	SGMR	49	GB	1418.3	1420.5	8.2	480.0			QL=6 ST=2 TYP=6
	8800	ATHN	47	GB	1418.3	1420.6	9.2	360.0			QL=6 ST=2 TYP=5
	2695	ATHN	47	GB	1418.5	1425.6	8.1	460.0			QL=2 ST=1 TYP=5
	2800	OTTA	30	PBI	1427.0	1427.0	13.0	18.8	4.8		
	2800	OTTA	1	S	1434.0	1435.6	3.0	5.6	2.8		
	2695	ATHN	47	GB	1453.8	1456.3	11.5	180.0			QL=6 ST=1 TYP=5
	2800	OTTA	47	GB	1454.0	1456.8	24.0	555.0	142.0		
	8800	SGMR	49	GB	1454.1	1456.3	16.7	810.0			QL=6 ST=2 TYP=6
	2695	SGMR	49	GB	1454.6	1456.8	16.2	600.0			QL=6 ST=2 TYP=6
	2695	SGMR	47	GB	1510.8	1511.0	15.3	94.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1510.8	1512.6	15.3	110.0			QL=6 ST=2 TYP=5
	2800	OTTA	29	PBI	1518.0	1518.0	45.0	18.8	7.5		
	8800	SGMR	47	GB	1526.1	1527.1	7.7	50.0			QL=6 ST=2 TYP=5
	2695	SGMR	4	S/F	1526.1	1527.8	7.7	38.0			QL=6 ST=2 TYP=3
	2800	OTTA	45	C	1616.0	1621.8	24.0	65.0	25.2		
	2695	SGMR	47	GB	1626.8	1627.8	2.7	58.0			QL=6 ST=3 TYP=5
	2800	OTTA	45	C	1646.5	1647.0	11.0	25.0	7.0		
	2800	OTTA	20	GRF	1733.0	1736.0	22.0	5.2	2.6		
	2800	OTTA	23	GRF	1920.0	1932.0	90.0	24.0			
	2800	OTTA	4	S/F	1926.0	1928.8	5.5	25.0	12.4		
	8800	PALE	8	S	1927.8	1928.6	.8	19.0			QL=6 ST=2 TYP=3
	2695	PENT	260	FAL	2110.0	2125.0	15.0	-8.0	-4.0		
	8800	LEAR	8	S	2210.8	2211.1	.8	25.0			QL=5 ST=2 TYP=3
	2695	LEAR	4	S/F	2310.1	2310.3	2.2	29.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	2310.6	2310.8	.5	7.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	2349.1	2349.3	.5	19.0			QL=5 ST=2 TYP=3
17	8800	LEAR	4	S/F	0007.8	0007.8	2.8	13.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0126.1	0126.3	.4	11.0			QL=5 ST=3 TYP=3
	8800	LEAR	47	GB	0145.0	0146.0	16.1	360.0			QL=5 ST=3 TYP=5
	8800	PALE	47	GB	0145.0	0146.0	14.6	360.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0145.1	0146.3	8.7	130.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	0221.1	0222.1	6.9	26.0			QL=5 ST=3 TYP=3
	2695	LEAR	47	GB	0222.3	0223.3	5.7	100.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	0402.3	0424.3	69.7	31.0			QL=6 ST=2 TYP=3
	2695	LEAR	47	GB	0403.5	0422.3	68.5	200.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0518.6	0519.6	4.2	100.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0519.3	0519.5	2.8	50.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0527.3	0528.5	3.8	8.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0533.3	0534.1	3.0	7.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0600.3	0600.3	.8	32.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0629.0	0629.3	.6	49.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0804.8	0808.6	9.3	26.0			QL=5 ST=2 TYP=3
	2695	LEAR	20	GRF	0808.1	0809.6	8.0	10.0			QL=6 ST=2 TYP=2
	8400	BERN	4	S/F	0959.5	1002.4	30.0U	88.0			
	8800	ATHN	47	GB	1000.8	1003.1	11.7	54.0			QL=6 ST=2 TYP=5
	2695	ATHN	47	GB	1001.1	1003.1	11.4	84.0			QL=2 ST=2 TYP=5
	8800	LEAR	47	GB	1001.3	1002.5	3.8	80.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	1001.6	1002.6	4.2	68.0			QL=6 ST=2 TYP=5
	2800	OTTA	21	GRF	1600.0	1700.0	130.0	12.2	6.1		
	2800	OTTA	1	S	1642.0	1645.5	7.0	6.6	3.0		
	8800	SGMR	4	S/F	1643.8	1644.6	3.5	20.0			QL=6 ST=2 TYP=3
	2800	OTTA	4	S/F	1651.7	1654.8	7.0	25.0	12.5		
	2695	SGMR	4	S/F	1652.0	1653.6	5.3	31.0			QL=6 ST=2 TYP=3
	8800	SGMR	4	S/F	1652.8	1654.6	8.2	42.0			QL=6 ST=2 TYP=3
	8800	SGMR	47	GB	1708.3	1709.6	10.2	72.0			QL=6 ST=2 TYP=5
	2800	OTTA	1	S	1732.0	1735.0	10.0	3.2	1.5		
	2800	OTTA	21	GRF	1815.0	2020.0	240.0	18.2			
	2800	OTTA	28	PRE	1839.0		12.5	21.0			
	2695	SGMR	49	GB	1849.0	1854.1	15.0	1899.0			QL=6 ST=2 TYP=7
	8800	SGMR	49	GB	1849.8	1854.8	45.0	3000.0			QL=6 ST=2 TYP=7
	2800	OTTA	47	GB	1851.5	1854.2	15.0	1655.0	383.0		
	8800	PALE	49	GB	1851.5	1854.8	20.8	3399.0			QL=6 ST=2 TYP=7
	2800	OTTA	4	S/F	1917.0	1941.5	59.0	276.0	101.0		
	8800	PALE	47	GB	1936.3	1936.8	5.8	180.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	1943.3	1943.5	28.5	270.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1943.3	1944.3	14.0	73.0			QL=6 ST=2 TYP=5
	2800	OTTA	1	S	2026.8	2027.0	2.0	4.0	1.8		
	2800	OTTA	22	GRF	2030.0	2032.0	17.0	13.0	6.5		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
17	8800	PALE	49 GB	2039.3	2039.6	.7	1300.0			QL=6 ST=2 TYP=6
	2695	PENT	3 S	2102.0	2106.0	18.0	205.0	40.0		
	8800	PALE	47 GB	2104.6	2106.1		139.0			QL=6 ST=3 TYP=5
	2695	PENT	47 GB	2130.0	2147.0	30.0	530.0	76.0		
	8800	PALE	49 GB	2139.1	2142.6	10.0	110.0			QL=6 ST=2 TYP=6
	2695	PENT		2245.0	2250.0	9.0	91.0			
	8800	PALE	47 GB	2248.3	2250.1	9.5	64.0			QL=6 ST=2 TYP=5
	8800	LEAR	47 GB	2249.1	2250.0	5.9	54.0			QL=5 ST=2 TYP=5
	2695	LEAR	47 GB	2249.1	2250.3	5.4	63.0			QL=6 ST=2 TYP=5
18	8800	LEAR	47 GB	0350.3	0350.8	5.0	420.0			QL=5 ST=2 TYP=5
	2695	LEAR	47 GB	0350.6	0350.8	1.0	97.0			QL=6 ST=2 TYP=5
	8800	LEAR	4 S/F	0458.5	0458.8	3.5	8.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0512.3	0514.1	64.7	10.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0612.3	0614.1	4.7	10.0			QL=6 ST=3 TYP=3
	2695	LEAR	49 GB	0818.1	0819.5	10.0	81.0			QL=6 ST=2 TYP=6
	8800	LEAR	49 GB	0819.0	0819.5	9.1	37.0			QL=6 ST=2 TYP=6
	8800	LEAR	49 GB	0828.1	0828.1	10.5	960.0			QL=6 ST=2 TYP=6
	2695	LEAR	47 GB	0828.1	0831.8	9.4	100.0			QL=6 ST=2 TYP=5
	8800	ATHN	47 GB	1344.0	1400.5	22.3	71.0			QL=6 ST=2 TYP=5
	2800	OTTA	45 C	1357.0	1358.0	5.0	22.4	8.0		
	2695	SGMR	4 S/F	1357.0	1357.8	5.0	32.0			QL=6 ST=2 TYP=3
	2695	ATHN	4 S/F	1357.5	1358.5	4.1	22.0			QL=2 ST=2 TYP=3
	8800	SGMR	47 GB	1359.6	1359.8	2.2	77.0			QL=6 ST=2 TYP=5
	2800	OTTA	3A S	1440.0	1512.0	50.0	245.0	88.0		
	2800	OTTA	46F C	1503.0	1504.5	9.0	9.4	4.0		
	2695	SGMR	47 GB	1504.0	1504.8	5.8	239.0			QL=6 ST=2 TYP=5
	8800	ATHN	49 GB	1504.1	1504.6	.9	640.0			QL=2 ST=3 TYP=6
	2695	ATHN	47 GB	1504.3	1504.6	.7	239.0			QL=2 ST=3 TYP=5
	8800	SGMR	49 GB	1504.3	1504.8	5.8	610.0			QL=6 ST=2 TYP=6
	2800	OTTA	4 S/F	1600.0	1601.1	3.2	46.0	15.4		
	2695	SGMR	8 S	1601.6	1602.1	1.0	30.0			QL=6 ST=2 TYP=3
	2800	OTTA	29 PBI	1603.2	1603.2	7.0	4.6	2.3		
	2695	SGMR	8 S	1710.8	1710.8	.3	20.0			QL=6 ST=2 TYP=3
	8800	PALE	4 S/F	1741.8E	1742.0	23.0D	43.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1830.0	1930.0	140.0	5.6	2.4		
	2695	LEAR	47 GB	2328.8	2329.5	1.3	60.0			QL=6 ST=2 TYP=5
	8800	LEAR	8 S	2329.1	2329.6	1.0	4.0			QL=6 ST=2 TYP=3
19	8800	LEAR	47 GB	0133.3	0136.1	33.2	81.0			QL=6 ST=2 TYP=5
	2695	LEAR	47 GB	0133.6	0135.1	6.0	119.0			QL=6 ST=2 TYP=5
	8800	PALE	47 GB	0134.8	0135.8	6.3	57.0			QL=6 ST=2 TYP=5
	2695	LEAR	4 S/F	0226.0	0229.3	6.8	42.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0227.8	0228.3	1.2	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0422.3	0422.6	1.0	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0613.5	0613.6	2.6	18.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0902.5	0902.6	3.1	17.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0905.3	0905.5	.5	21.0			QL=6 ST=3 TYP=3
	8800	SGMR	8 S	1348.3	1348.5	1.0	26.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1425.0	1445.0	65.0	4.8	2.4		
	2800	OTTA	240 R	1535.0	1545.0	10.0	4.0	2.0		
	2800	OTTA	21 GRF	1552.0	1736.0	365.0	39.0			
	2800	OTTA	4 S/F	1609.0	1634.0	47.0	161.0	52.6		
	2695	SGMR	20 GRF	1621.1	1624.5	14.2	60.0			QL=6 ST=3 TYP=2
	8800	SGMR	20 GRF	1621.8	1624.6	13.5	51.0			QL=6 ST=3 TYP=2
	8800	SGMR	20 GRF	1635.3	1635.5	10.3	91.0			QL=6 ST=2 TYP=2
	2695	SGMR	20 GRF	1635.3	1635.5	9.0	130.0			QL=6 ST=2 TYP=2
	2800	OTTA	1 S	1751.9	1752.0	1.0	2.0	1.0		
	2800	OTTA	3 S	2019.0	2019.4	3.0	11.2	3.8		
	8800	LEAR	20 GRF	2355.8	0033.5	92.2D	20.0			QL=5 ST=2 TYP=2
20	8800	LEAR	47 GB	0010.6	0019.5	20.7	67.0			QL=6 ST=2 TYP=5
	2695	LEAR	4 S/F	0017.1	0019.8	2.9	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	4 S/F	0124.3	0125.3	2.3	8.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0340.3	0340.6	.7	10.0			QL=6 ST=2 TYP=3
	2695	LEAR	8 S	0340.3	0340.6	.7	20.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0618.3	0619.0	3.8	30.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0644.3	0644.6	.5	21.0			QL=6 ST=2 TYP=3
	2695	LEAR	47 GB	0859.8	0900.1	4.7	88.0			QL=6 ST=2 TYP=5
	8800	LEAR	4 S/F	0900.1	0900.6	2.9	22.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
20	2800	OTTA	20	GRF	1615.0	1617.0	50.0	7.2	3.0		
	2695	PENT	1	S	2121.9	2122.9	4.5	5.4	2.5		
21	2695	LEAR	8	S	0213.0	0213.3	1.1	22.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0213.5	0213.6	.6	10.0			QL=5 ST=2 TYP=3
	2695	LEAR	8	S	0423.8	0423.8	.3	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0429.8	0430.0	.3	6.0			QL=5 ST=3 TYP=3
	2695	LEAR	8	S	0545.3	0546.0	1.7	15.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	0612.0	0613.6	3.6	20.0			QL=2 ST=2 TYP=3
	2695	LEAR	8	S	0613.1	0613.1	1.5	21.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0613.6	0615.3	2.0	7.0			QL=5 ST=3 TYP=3
	8800	ATHN	20	GRF	0654.3	0700.3	8.0	17.0			QL=2 ST=2 TYP=2
	8800	ATHN	20	GRF	0702.1	0706.3	7.5	13.0			QL=2 ST=2 TYP=2
	8800	ATHN	4	S/F	1156.6	1156.6	2.8	43.0			QL=2 ST=2 TYP=3
	2800	OTTA	3	S	2032.0	2035.2	14.0	15.2	5.0		
	8800	PALE	47	GB	2307.8	2308.8	5.0	139.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	2308.0	2308.8	3.1	119.0			QL=6 ST=2 TYP=5
	2695	LEAR	8	S	2309.1	2309.3	1.2	7.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	2326.5	2326.6	.3	16.0			QL=6 ST=2 TYP=3
	8800	PALE	4	S/F	2326.5	2327.1	2.6	23.0			QL=6 ST=2 TYP=3
22	2695	LEAR	47	GB	0133.6	0133.8	1.5	60.0			QL=6 ST=2 TYP=5
	8800	LEAR	8	S	0133.6	0134.3	1.5	22.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0208.0	0208.6	2.3	17.0			QL=6 ST=2 TYP=3
	2695	LEAR	49	GB	0823.8	0826.1	12.0	900.0			QL=6 ST=2 TYP=6
	8800	LEAR	47	GB	0824.1	0827.0	10.4	320.0			QL=6 ST=2 TYP=5
	2800	OTTA	21	GRF	1330.0		390.0	11.0			
	2800	OTTA	2	S/F	1653.0	1655.1	4.0	8.0	1.4		
	2800	OTTA	20	GRF	2020.0	2024.0	14.0	3.0	1.4		
23	2695	LEAR	4	S/F	0508.0	0509.0	2.8	7.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0727.8	0727.8	.3	11.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	1402.6	1405.3	5.2	8.0			QL=2 ST=2 TYP=3
	8800	ATHN	4	S/F	1403.0	1405.3	4.6	21.0			QL=6 ST=2 TYP=3
	2800	OTTA	27	RF	1520.0		200.0	3.6	2.8		
	2800	OTTA	24	R	1520.0	1533.0	13.0	3.6	1.6		
	2800	OTTA	24P	R	1533.0		137.0	3.6			
	2800	OTTA	26	FAL	1750.0	1840.0	50.0	-3.6	-1.6		
	2695	PENT	20	GRF	2010.0	2110.0	95.0	6.6	3.3		
24	2800	OTTA	240	R	1515.0	1640.0	85.0	5.0	2.5		
	2800	OTTA	240	AR	1910.0	1926.0	16.0	9.0	4.5		
	2800	OTTA	4	S/F	1914.5	1915.0	3.0	27.0	6.8		
	2695	SGMR	47	GB	1914.8	1915.1	1.0	53.0			QL=6 ST=2 TYP=5
	2800	OTTA	21	GRF	1927.0	1938.0	110.0	12.0	5.6		
	2800	OTTA	1	S	1930.0	1930.1	1.0	3.2	1.8		
	2800	OTTA	2	S/F	1936.5	1938.0	4.0	6.0	3.0		
	2800	OTTA	8	S	2052.8	2052.9	.2	54.0			
25	2695	LEAR	4	S/F	0354.8	0354.8	2.2	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0425.8	0425.8	.2	10.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0504.1	0505.6	8.5	43.0			QL=6 ST=2 TYP=3
	2695	LEAR	20	GRF	0612.0	0614.1	20.0	8.0			QL=6 ST=2 TYP=2
	2695	LEAR	47	GB	0716.1	0717.6	19.5	57.0			QL=6 ST=2 TYP=5
	2695	ATHN	47	GB	0716.6	0720.5	14.7	59.0			QL=2 ST=2 TYP=5
	8800	ATHN	47	GB	0716.6	0722.3	14.7	77.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	0716.8	0717.8	18.8	26.0			QL=6 ST=2 TYP=3
	2695	ATHN	49	GB	0737.3	0746.8	45.3	860.0			QL=2 ST=2 TYP=6
	8800	ATHN	49	GB	0738.6	0746.8	44.0	1899.0			QL=6 ST=2 TYP=6
	2695	LEAR	49	GB	0742.0	0744.5	10.8	370.0			QL=6 ST=2 TYP=6
	8800	LEAR	49	GB	0742.8	0744.1	10.0	500.0			QL=6 ST=2 TYP=6
	8800	LEAR	49	GB	0752.8	0753.0	22.7	2300.0			QL=6 ST=2 TYP=6
	2695	LEAR	49	GB	0752.8	0753.0	22.7	880.0			QL=6 ST=2 TYP=6
	2695	ATHN	47	GB	0841.3	0849.6	21.0	59.0			QL=2 ST=2 TYP=5
	2695	LEAR	4	S/F	0845.1	0847.8	12.2	30.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1630.0	1730.0	110.0	3.6	2.2		
	2800	OTTA	1	S	1658.5	1659.0	1.0	2.8	1.4		
	2800	OTTA	45	C	1755.5	1757.7	4.0	17.2	4.6		
	2695	SGMR	4	S/F	1755.8	1756.1	2.8	13.0			QL=6 ST=2 TYP=3
26	8800	LEAR	49	GB	0011.3	0012.6	8.3	970.0			QL=6 ST=2 TYP=6

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
26	2695	LEAR	47	GB	0012.0	0012.6	5.1	189.0			QL=6 ST=2 TYP=5
	2695	MANI	47	GB	0012.0	0017.0	5.3	110.0			QL=6 ST=2 TYP=5
	8800	PALE	49	GB	0012.6E	0012.8	3.2D	1000.0			QL=2 ST=3 TYP=6
	2695	LEAR	47	GB	0149.3	0150.8	5.8	119.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0149.8	0150.1	5.3	110.0			QL=6 ST=2 TYP=5
	8800	PALE	47	GB	0150.1	0150.3	1.2	139.0			QL=6 ST=2 TYP=5
	2695	ATHN	4	S/F	0929.3	0933.3	9.0	46.0			QL=2 ST=2 TYP=3
	8800	ATHN	47	GB	0930.3	0933.3	9.7	90.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0930.8	0933.1	10.5	119.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0931.0	0933.1	9.1	53.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	0954.3	0955.6	3.0	20.0			QL=6 ST=2 TYP=3
	2695	ATHN	8	S	0955.3	0955.6	1.3	11.0			QL=2 ST=2 TYP=3
	2800	OTTA	21	GRF	1420.0	1503.0	70.0D	7.4			
	2800	OTTA	8	S	1501.0	1501.3	.8	10.2			
	2695	SGMR	8	S	1503.1	1503.3	.5	13.0			QL=6 ST=2 TYP=3
	8800	SGMR	47	GB	1506.1	1508.5	8.7	49.0			QL=6 ST=2 TYP=5
	2800	OTTA	46F	C	1507.5	1508.0	7.0	18.8	5.6		
	2800	OTTA	1	S	2027.5	2029.0	8.0	2.2	1.1		
27	8800	LEAR	4	S/F	0313.3	0314.0	2.5	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0523.6	0523.8	8.5	98.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0523.8	0524.3	7.3	39.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0815.3	0815.3	.3	20.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	1129.6	1137.5	11.2	11.0			QL=6 ST=2 TYP=3
	2695	ATHN	47	GB	1134.3	1137.5	4.7	95.0			QL=2 ST=2 TYP=5
	2800	OTTA	21	GRF	1420.0	1450.0	140.0D	6.2			
	2800	OTTA	1	S	1427.0	1427.3	1.0	4.0	2.0		
	2800	OTTA	20	GRF	1710.0	1800.0	70.0	2.8	1.8		
	2800	OTTA	8	S	1947.8	1948.0	.4	2.0	1.0		
	2800	OTTA	3	S	2021.0	2021.1	1.0	10.0	3.8		
	2695	PENT	1	S	2216.0	2217.0	3.0	3.6	1.2		
28	2800	OTTA	1	S	1557.0	1557.5	1.5	2.4	1.2		
	2800	OTTA	40	F	1725.0	1726.2	3.0	10.2			
	2695	PENT	21	GRF	2040.0	2100.0	65.0	2.6	1.6		
	2800	OTTA	1	S	2044.8	2045.5	2.0	2.4	1.6		
29	8800	LEAR	8	S	0512.8	0513.6	1.8	16.0			QL=6 ST=2 TYP=3
	8800	ATHN	49	GB	0642.5	0645.3	15.1	1600.0			QL=6 ST=2 TYP=6
	8800	LEAR	49	GB	0643.5	0645.1	13.3	2100.0			QL=6 ST=2 TYP=7
	2695	ATHN	49	GB	0643.8	0645.1	13.8	560.0			QL=2 ST=2 TYP=6
	2695	LEAR	49	GB	0643.8	0645.1	9.3	670.0			QL=6 ST=2 TYP=7
	2800	OTTA	40	F	1622.2	1627.0	6.0	4.2			
	2800	OTTA	8	S	1645.7	1645.9	.5	6.0	3.0		
	2800	OTTA	1	S	1727.9	1728.0	1.0	7.6	2.0		
	2800	OTTA	1	S	1849.0	1852.0	10.0	2.6	1.3		
	8800	PALE	8	S	2122.8	2123.6	1.2	40.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	2348.8	2349.1	2.5	17.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	2349.1	2349.1	.2	13.0			QL=6 ST=2 TYP=3
30	8800	LEAR	8	S	0025.6	0026.1	.7	18.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	0026.0	0026.1	.3	19.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0141.8	0142.6	18.7	340.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0142.1	0153.0	13.0	87.0			QL=6 ST=2 TYP=5
	8800	PALE	47	GB	0142.5	0142.8	11.5	320.0			QL=6 ST=3 TYP=5
	2695	LEAR	8	S	0603.6	0603.8	.4	15.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0957.1	0957.1	.2	11.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1515.0	1550.0	95.0	2.6	1.3		
	2800	OTTA	1	S	1518.0	1519.7	4.0	4.0	1.4		
	2800	OTTA	23	GRF	1735.0	2025.0	270.0	6.0			
	2800	OTTA	4	S/F	1806.0	1807.0	4.0	15.6	10.4		
	2800	OTTA	30	PBI	1810.0	1810.0	75.0	6.2	3.0		
	2800	OTTA	1	S	1817.0	1818.0	2.0	2.0	1.0		
	8800	PALE	47	GB	1843.6	1845.3	3.0	70.0			QL=6 ST=2 TYP=5
	2800	OTTA	3	S	1844.8	1845.3	2.5	21.0	6.0		
	8800	SGMR	8	S	1845.0	1845.3	1.0	49.0			QL=6 ST=3 TYP=3
	2695	SGMR	8	S	1845.3	1845.5	.5	29.0			QL=6 ST=3 TYP=3
	2800	OTTA	2	S/F	1853.0	1856.5	5.0	9.4	4.5		
	8800	LEAR	4	S/F	2223.3	2224.6	4.0	30.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	2223.6	2224.5	1.2	13.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

DECEMBER 1982

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
30	2695	PENT	3 S	2223.8	2224.7	2.5	13.0	5.0		
31	8800	LEAR	47 GB	0014.8	0016.3	5.0	60.0			QL=6 ST=2 TYP=5
	8800	PALE	47 GB	0015.1	0018.3	4.4	58.0			QL=6 ST=2 TYP=5
	2695	LEAR	4 S/F	0016.0	0016.5	2.8	22.0			QL=6 ST=2 TYP=3
	2800	OTTA	2 S/F	1927.0	1927.5	2.0	2.0	1.0		

Observatories:

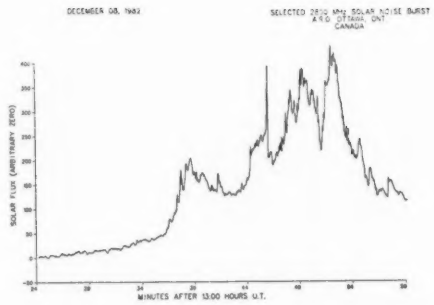
BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

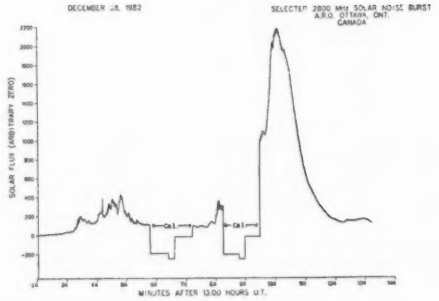
Explanation of Type Code:

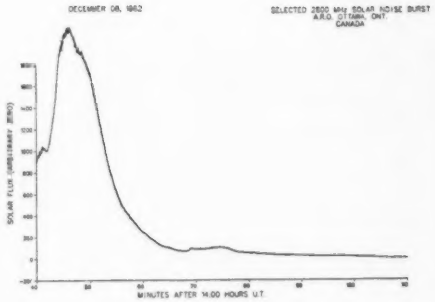
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset on Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burstise Storm
48 Major
49 Major +

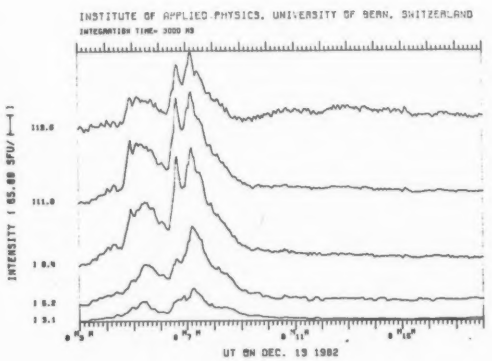
SELECTED SOLAR NOISE BURSTS

DECEMBER 8-16, 1982








INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND
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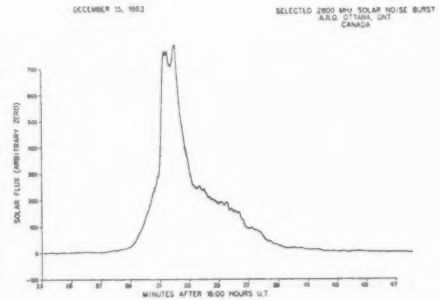
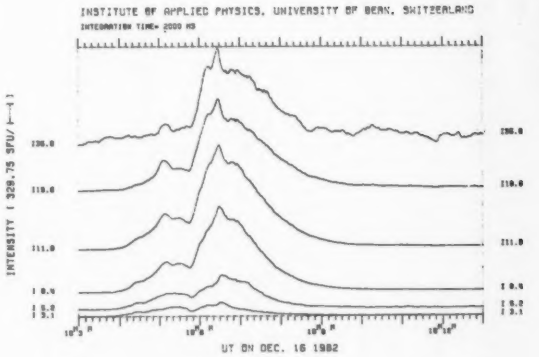
UT ON DEC. 13 1982



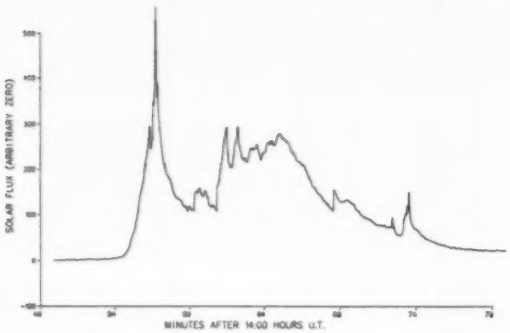

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND
INTEGRATION TIME= 2000 MS
INTENSITY (328.75 SFU/)
UT ON DEC. 16 1982

SELECTED SOLAR NOISE BURSTS

DECEMBER 16-17, 1982

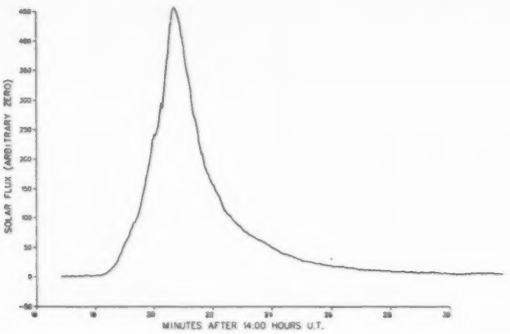
DECEMBER 16, 1982

SELECTED 2800 MHz SOLAR NOISE BURST
A.R.O. OTTAWA, ONT.
CANADA



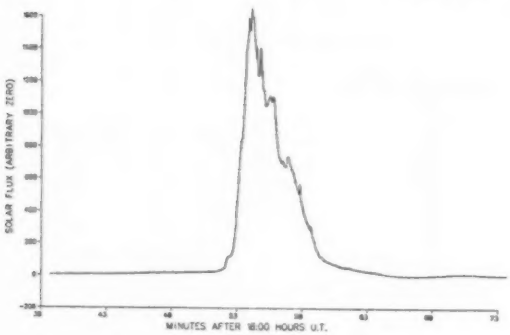
DECEMBER 16, 1982

SELECTED 2800 MHz SOLAR NOISE BURST
A.R.O. OTTAWA, ONT.
CANADA



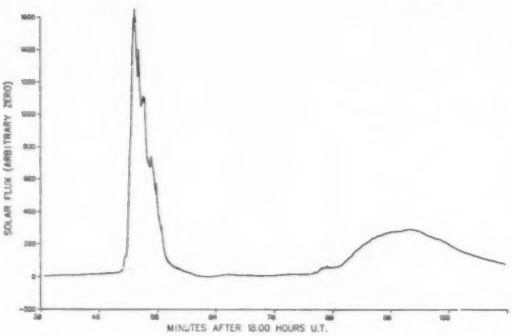
DECEMBER 17, 1982

SELECTED 2800 MHz SOLAR NOISE BURST
A.R.O. OTTAWA, ONT.
CANADA



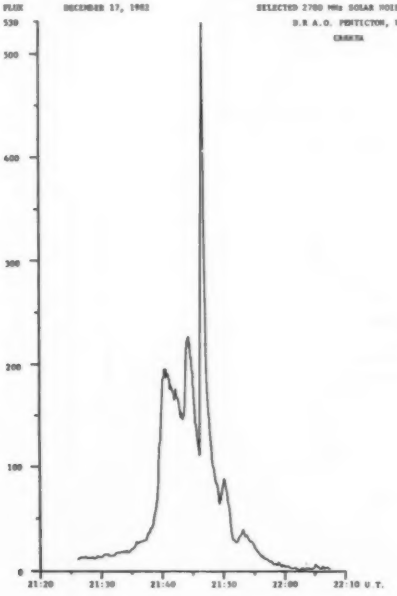
DECEMBER 17, 1982

SELECTED 2800 MHz SOLAR NOISE BURST
A.R.O. OTTAWA, ONT.
CANADA



FLUX DECEMBER 17, 1982

SELECTED 2700 MHz SOLAR NOISE BURST
D.R.A.O. PENTICTON, B.C.
CANADA



BOULDER GEOMAGNETIC SUBSTORM LOG

December 1982

DATE	ONSET TIME	DIR	COMMENTS
12/01	0805	West	Weak substorm, otherwise quiet day.
12/02	1315	West	Weak substorm, otherwise quiet day.
12/03			Field intermittently unsettled.
	1250	West	Several minor injections with recovery near 1700 UT.
12/04			Field intermittently unsettled.
	2000		Slow positive impulse H-component all mid/low stations.
12/05			Field unsettled through 0900 UT and quiet the balance of day.
	0340	East	
	0645	West	
12/06			Field slightly unsettled.
12/07	0329	SSC	Magstorm conditions 1300-2000 UT, otherwise unsettled.
12/08			Magstorm conditions 0630-2030 UT.
12/09			Field unsettled.
	1255	West	Strong substorm.
12/10			Magstorm conditions 0600-2100 UT.
12/11	0335	East	Boulder in partial ring current sector.
	1530	West	Several injections with recovery near 1930 UT.
12/12			Field intermittently unsettled.
	0810		Localized substorm at Inuvik.
	0835		Localized substorm at Cape Parry.
	1045		Weak substorm.
	1135	West	
12/13			Field slightly unsettled.
12/14			Field intermittently unsettled.
12/15			Field intermittently unsettled.
	0945		Weak substorm.
12/16			Field intermittently active.
	1105	West	Moderate substorm, numerous minor injections follow.
12/17			Magstorm conditions 0730-1600 UT.
	1850	West	
12/18			Magstorm conditions 0830-2000 UT.
12/19	0255	SSC	Magstorm conditions through 1500 UT.
12/20			Field intermittently active.
	0515		Localized substorm vicinity Cape Parry.
	0920		Localized substorm Ft. Yukon to Talkeetna.
	1115	West	Strong substorm, slow expansion northward through Alaska.
	1310	West	Injection into existing substorm.
	1550	West	
12/21	0645	West	Near continuous injection processes through 1800 UT.
12/22			Field active through 0600 UT.
	0050	East	
	1415	West	Several injections with recovery near 1700 UT.
12/23			Field intermittently active.
	0710	West	
	1115	West	
	1245	West	
	1550		Localized substorm vicinity College.
12/24			Field intermittently unsettled.
	0205	East	
	1400	West	
12/25			Field intermittently unsettled.
	0745	West	
	1205	West	Slow onset, several minor injections with recovery near 1600 UT.
12/26			Field intermittently unsettled.
	0605		Weak substorm.
	1130		Weak substorm.
	1320		Weak substorm.
12/27			Field intermittently unsettled.
	0715		Positive impulse H-component all mid/low latitude stations.
	1120	West	
12/28			Field unsettled all day.
	0835	West	
	1235	West	Strong substorm.
12/29			Field unsettled all day.
	0750		Weak substorm.
	0835	West	
	1350	West	Slow onset, weak substorm.
12/30			Field unsettled all day.
	1055	West	
12/31			Field slightly unsettled.

INFERRED IP MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2022	JUL 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	JUL 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TA	TA	-	-	-	-	-	AT	-	-
2024	AUG 26	-	-	-	TA	-	TA	-	-	TA	-	-	TA	-	-	TA	-	TA	-	-	-	-	TA	-	-	-	-	-
2025	SEP 22	-	-	-	-	-	-	-	AT	-	TA	-	-	TA	-	TA	-	TA	-	AT	-	TA	-	TA	-	AT	-	TA
2026	OCT 19	AT	-	TA	-	TA	-	-	-	TA	-	TA	-	-	-	-	TA	-	-	-	-	-	AT	-	TA	-	-	-
2027	NOV 15	-	-	-	-	AT	-	AT	-	-	-	-	-	-	-	-	TA	-	TA	-	AT	-	-	-	-	-	AT	-
2028	DEC 12	TA	-	-	-	-	AT	-	AT	-	-	-	TA	-	-	-	-	AT	-	AT	-	TA	-	-	-	TA	-	-
2029	1982 JAN 8	-	-	-	-	-	TA	-	TA	-	-	-	-	-	TA	-	-	TA	-	-	-	AT	-	-	-	AT	-	-
2030	FEB 4	-	-	-	TA	-	TA	-	TA	-	TA	-	-	-	-	-	TA	-	-	-	-	-	-	TA	-	-	TA	-
2031	MAR 3	-	-	-	-	-	TA	-	TA	-	TA	-	TA	-	TA	-	-	-	-	TA	TA	-	-	-	-	-	AT	-
2032	MAR 30	-	TA	-	TA	-	-	-	-	-	-	TA	-	-	-	-	-	AT	TA	-	TA	-	-	-	-	-	-	-
2033	APR 26	-	AT	-	-	-	-	-	TA	-	TA	-	-	-	-	-	-	-	-	-	-	-	-	-	AT	-	AT	-
2034	MAY 23	-	-	-	AT	-	-	TA	-	-	-	-	AT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TA
2035	JUN 19	-	-	-	-	-	-	-	-	-	-	-	-	TA	-	-	-	-	-	-	-	-	-	TA	-	-	-	-
2036	JUL 16	-	-	-	-	-	TA	-	-	-	-	AT	-	-	-	AT	-	-	-	-	-	-	-	-	-	-	-	-
2037	AUG 12	-	-	-	-	-	-	-	-	TA	-	-	TA	-	TA	-	-	-	TA	-	TA	-	-	-	-	-	-	-
2038	SEP 8	TA	-	AT	-	-	-	-	-	-	-	-	-	-	TA	-	AT	-	-	-	-	-	TA	-	-	-	-	-
2039	OCT 5	-	AT	-	AT	-	-	-	-	-	AT	-	TA	-	-	-	AT	-	-	-	-	-	-	-	TA	-	-	-
2040	NOV 1	AT	-	-	-	AT	-	-	-	-	AT	-	-	-	-	AT	-	-	TA	-	-	-	-	-	TA	AT	-	-
2041	NOV 28	TA	-	-	-	-	AT	-	-	-	-	-	-	TA	TA	-	-	-	-	-	-	-	AT	AT	-	-	-	-
2042	DEC 25	-	-	AT	-	AT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

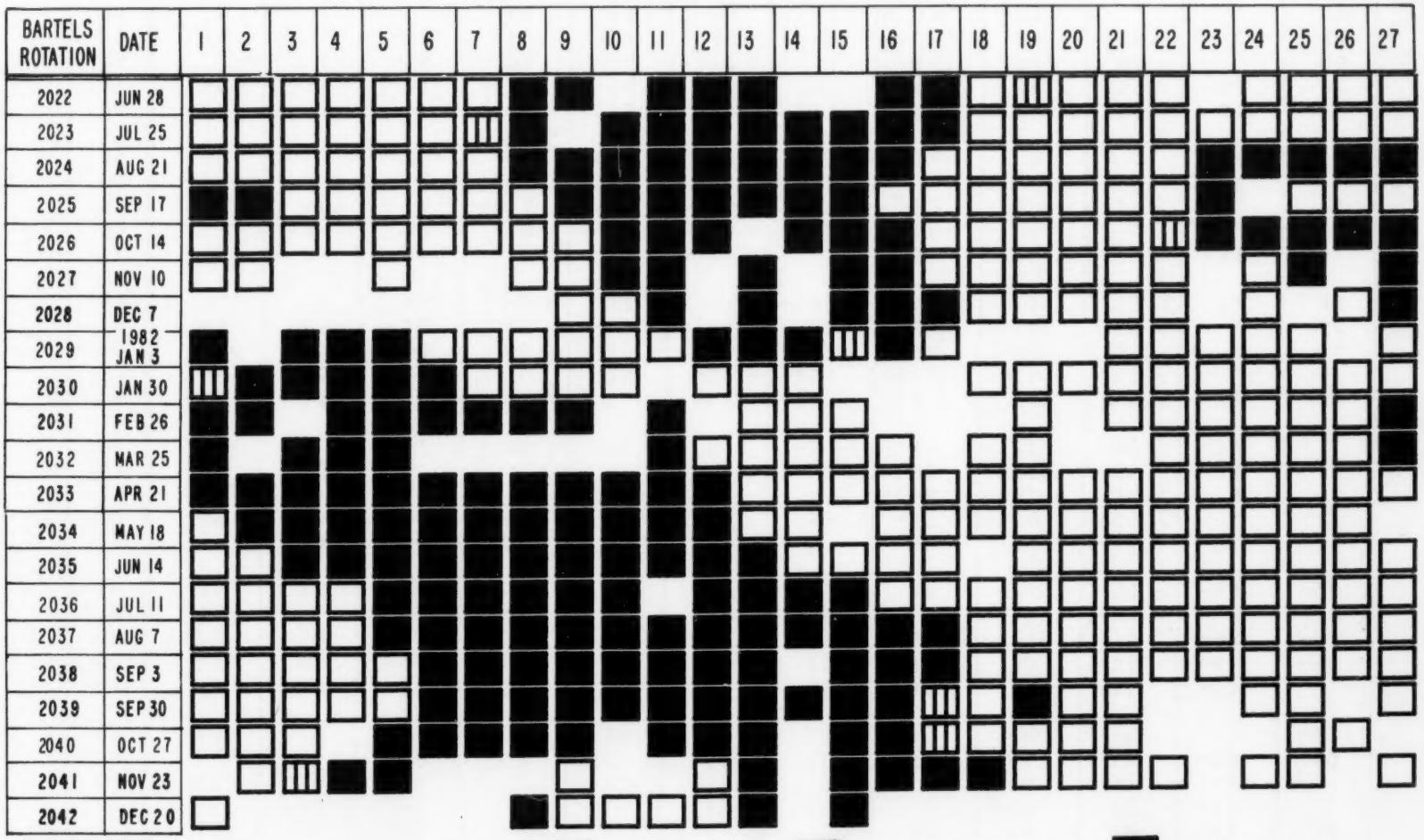
▓ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT
No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

1982

day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
01	15	-20	-19	.	-6	.	.	49	89	22	-31	42
02	-6	-44	-9	.	-6	33	85	19	102	53	-15	.
03	-17	-29	-20	.	23	38	75	19	84	37	-18	.
04	.	-3	-39	-17	43	54	71	52	66	18	-38	10
05	-10	9	-44	3	48	80	53	85	68	-6	.	-42
06	-5	19	-21	38	16	82	35	105	55	-41	-63	.
07	-4	43	.	60	41	77	29	81	30	-54	-61	-90
08	25	64	-2	57	69	80	42	63	-27	-76	-68	-64
09	23	.	.	24	74	68	54	59	-55	-90	.	-29
10	36	15	16	.	70	54	63	33	-74	-93	-54	-20
11	45	24	34	61	65	50	87	-30	-93	-96	-21	26
12	35	33	35	46	79	58	79	-87	-124	-100	1	29
13	16	.	.	.	87	.	43	-118	-125	-70	19	43
14	-7	.	.	.	77	78	9	-121	-120	-35	34	28
15	-6	.	.	86	72	51	-39	-144	-112	-7	37	.
16	-12	14	21	93	51	-13	-112	-149	.	-1	52	8
17	-1	16	.	71	38	-51	-164	-141	-49	4	.	57
18	-3	5	4	46	27	-93	-193	-124	-28	-43	.	.
19	33	15	20	28	-15	-184	-201	-93	-14	55	.	64
20	.	27	31	-6	-57	-237	-189	-59	12	33	22	32
21	.	38	25	-38	-68	-225	.	-32	40	.	33	.
22	.	48	22	-78	-93	-170	-128	-16	44	.	.	.
23	9	41	14	-113	-132	-123	-71	-12	26	17	.	.
24	25	28	-2	-107	-158	-69	-29	5	10	45	12	.
25	35	10	-26	-93	-151	-56	-5	32	8	.	-1	.
26	42	-3	.	-104	-118	-40	12	39	18	54	-31	.
27	36	-34	-61	-117	-26	11	28	47	36	55	-58	-31
28	.	.	-56	-122	-26	37	38	46	72	34	.	6
29	15		-53	-77	-10	46	48	25	57	20	.	42
30	0		.	-26	19	59	61	39	52	.	.	59
31	-10		.		46		53	64		-11		35

DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

SGD 461 Part I (Prompt)

NOVEMBER 1982 DATA

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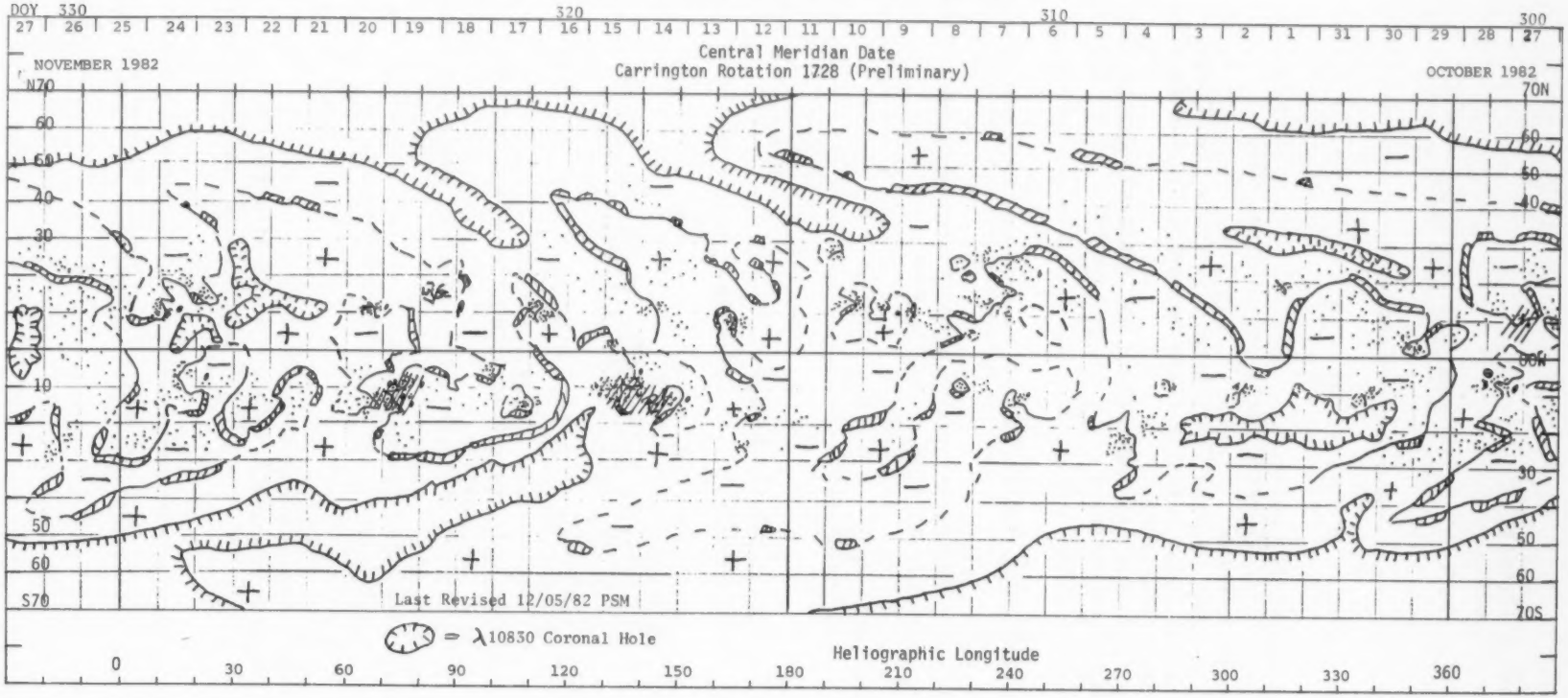
DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

Hα SYNOPTIC CHART

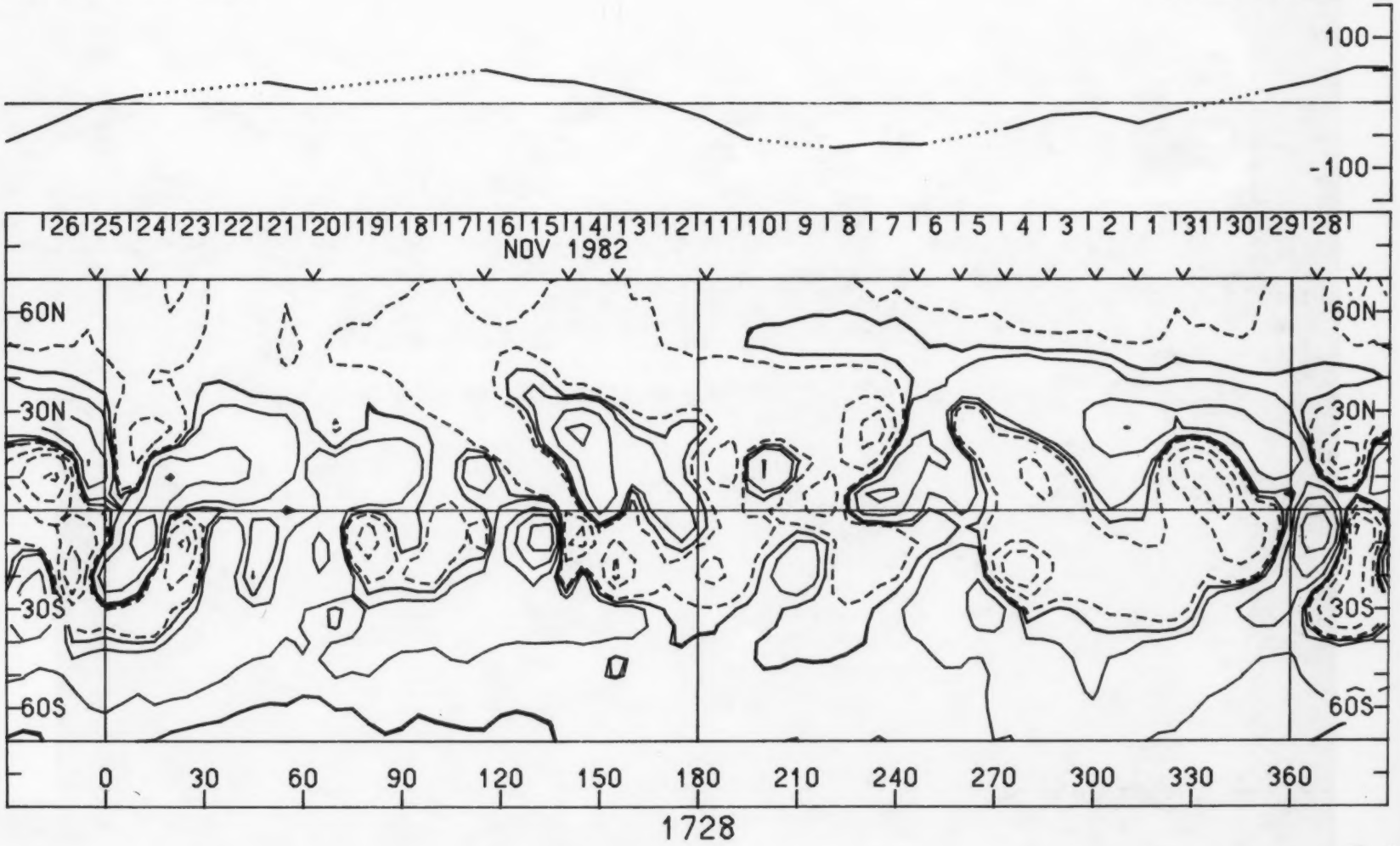
CARRINGTON ROTATION 1728 (PRELIMINARY)



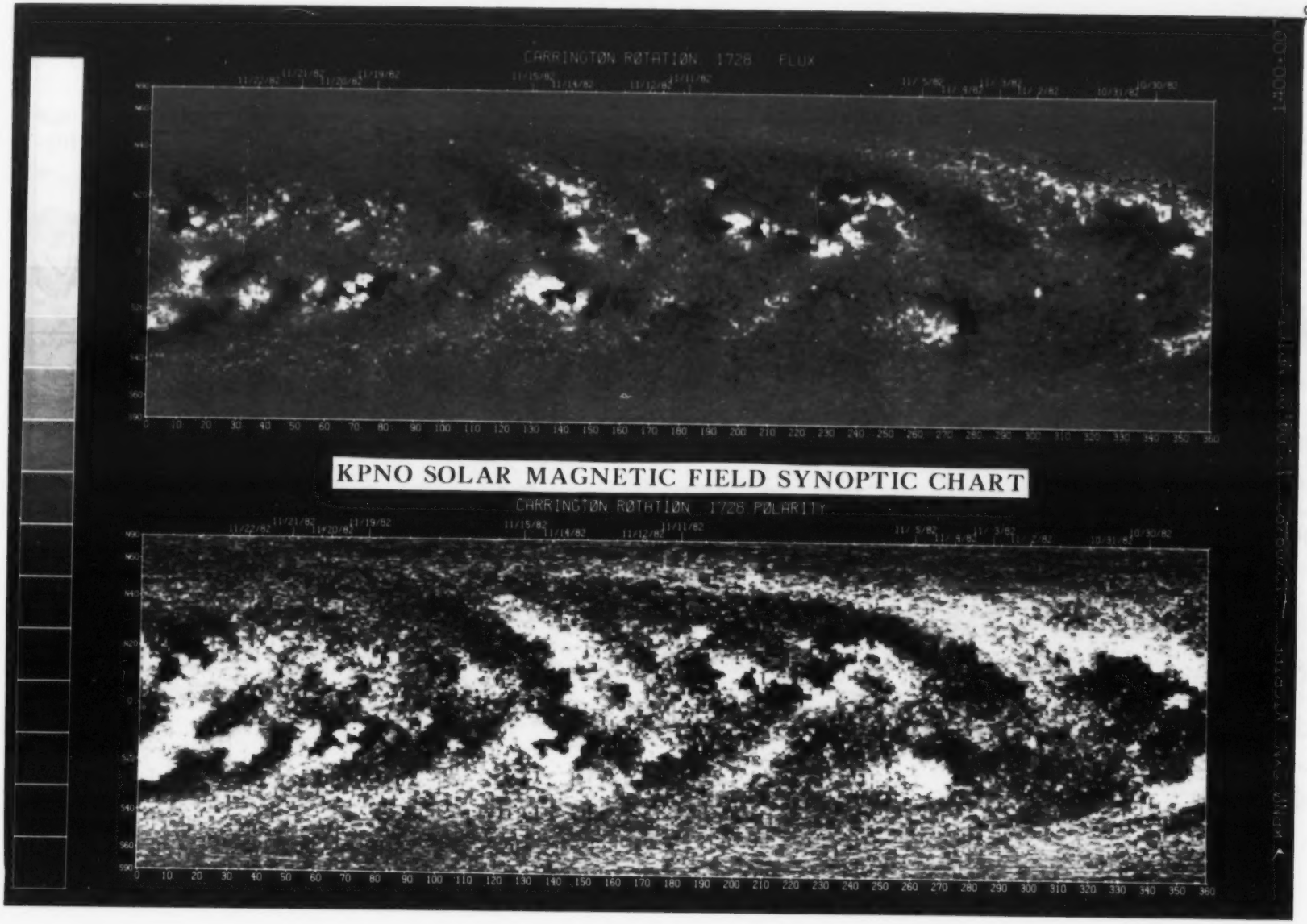
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1728

Stanford Solar Observatory

0,±100,200,500... μT



55
28 Nov 82



KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1728

KITT PEAK NATIONAL OBSERVATORY

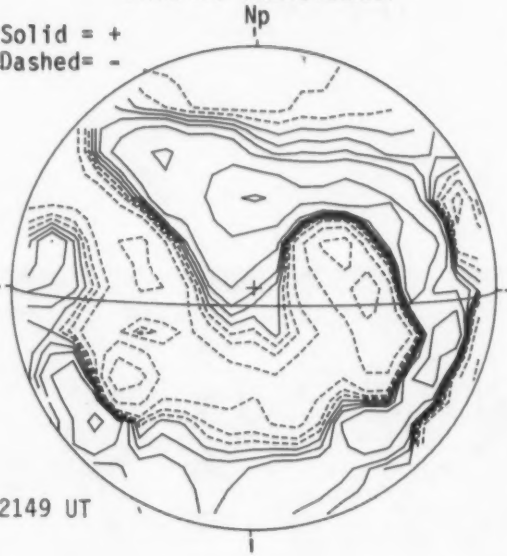
NOVEMBER 01, 1982 (P= 24.59, B_o= 4.38, L_o= 323.22)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

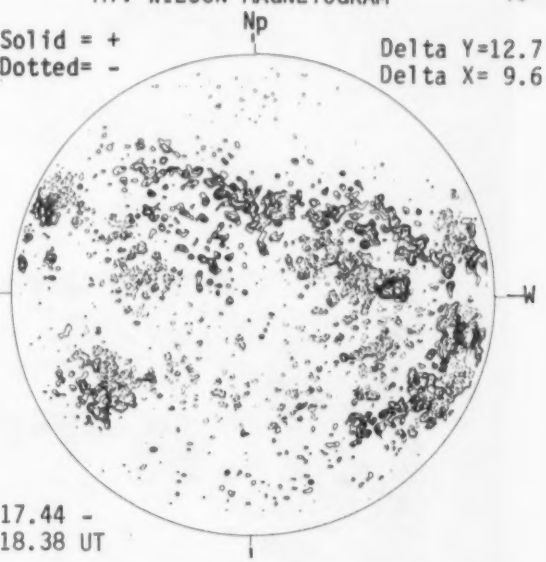
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

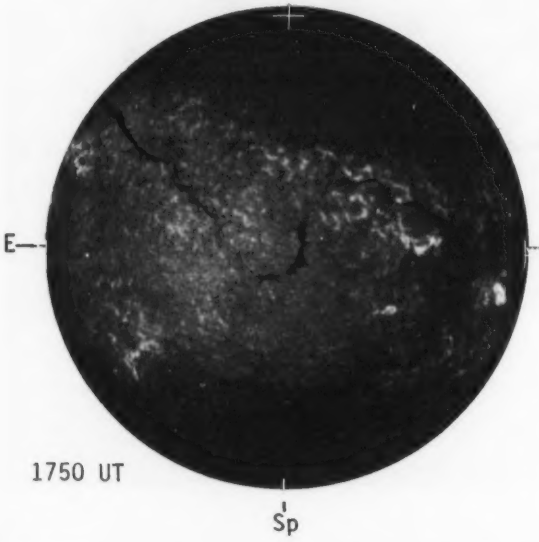


MT. WILSON MAGNETOGRAM

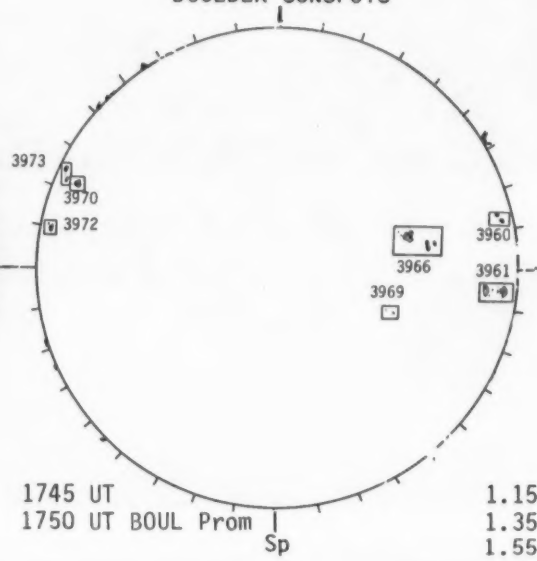
Solid = +
Dotted= -
Delta Y=12.7
Delta X= 9.6



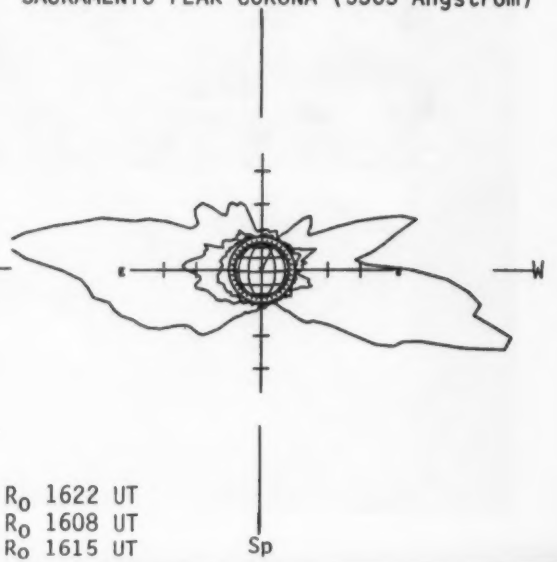
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



NOVEMBER 02, 1982 (P= 24.42, B_o= 4.28, L_o= 310.03)

Sp

1750 UT BOUL Prom

Sp

1.35 R_o 1608 UT
1.55 R_o 1615 UT

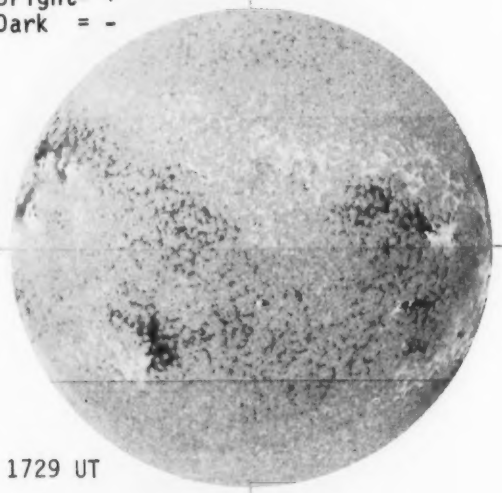
Sp

N O V E M B E R 02, 1 9 8 2 (P= 24.42, B_o= 4.28, L_o= 310.03)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -



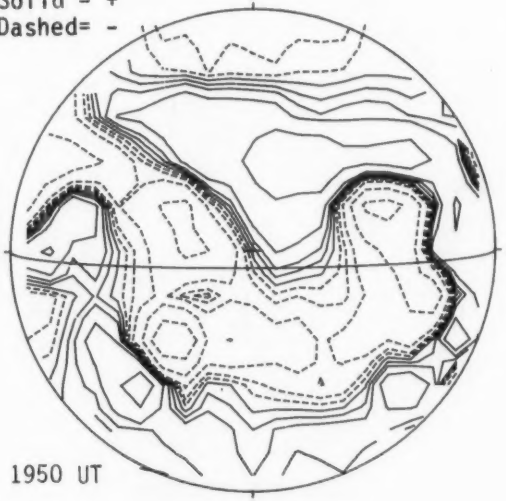
E

1729 UT

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -



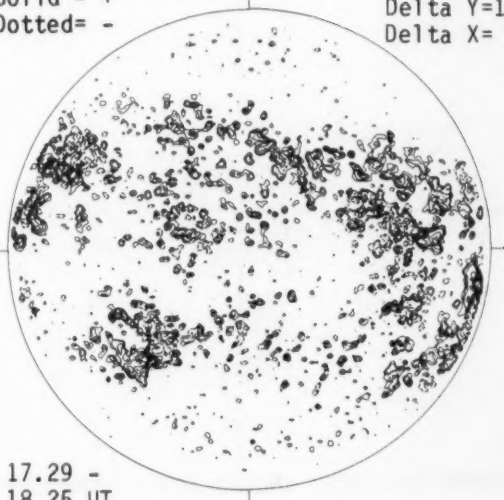
1950 UT

MT. WILSON MAGNETOGRAM

Np

Solid = +
Dotted= -

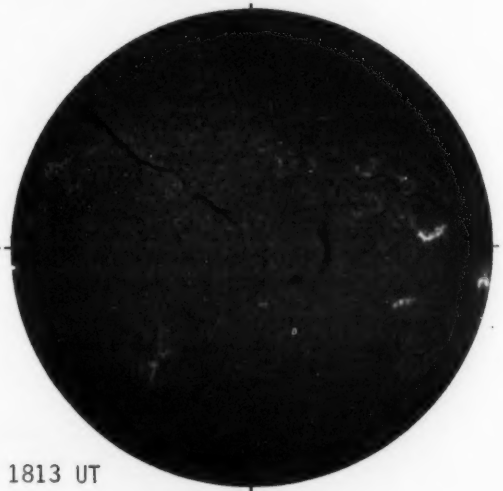
Delta Y=12.7
Delta X= 9.6



W

17.29 -
18.25 UT

HOLLOMAN H-ALPHA

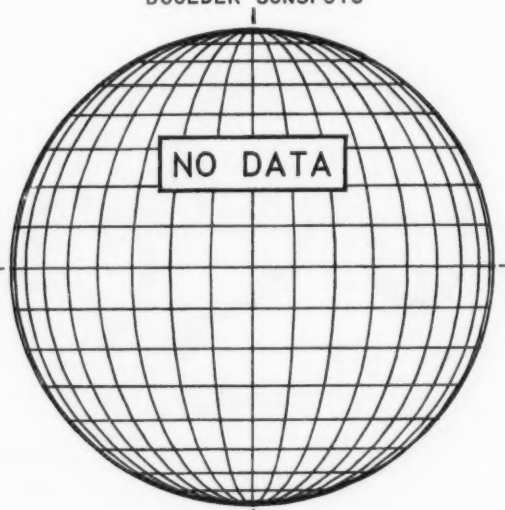


E

1813 UT

Sp

BOULDER SUNSPOTS



Sp

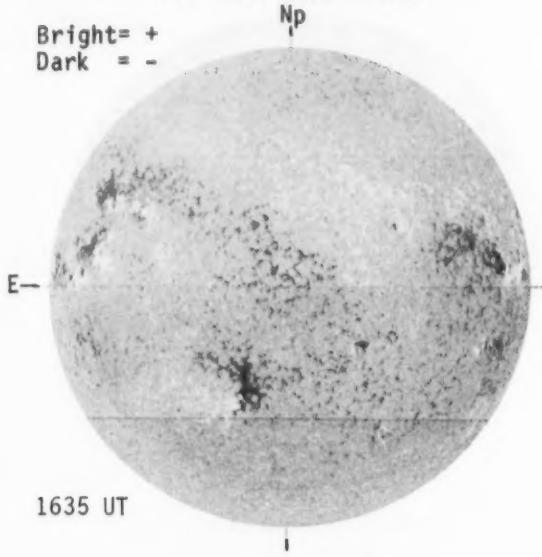
SACRAMENTO PEAK CORONA (5303 Angstrom)

W

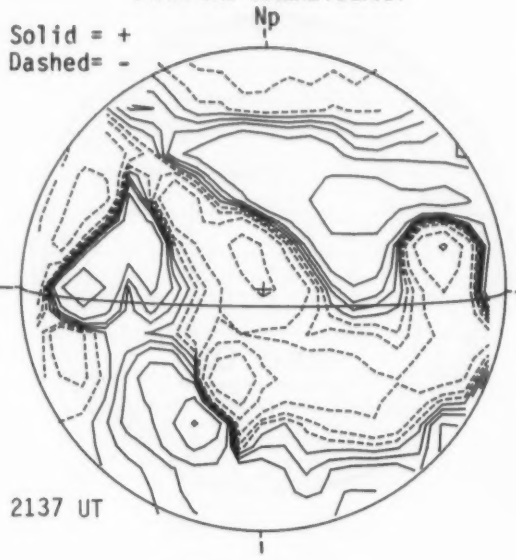
Sp

N O V E M B E R 03, 1 9 8 2 (P= 24.24, B_o= 4.18, L_o= 296.84)

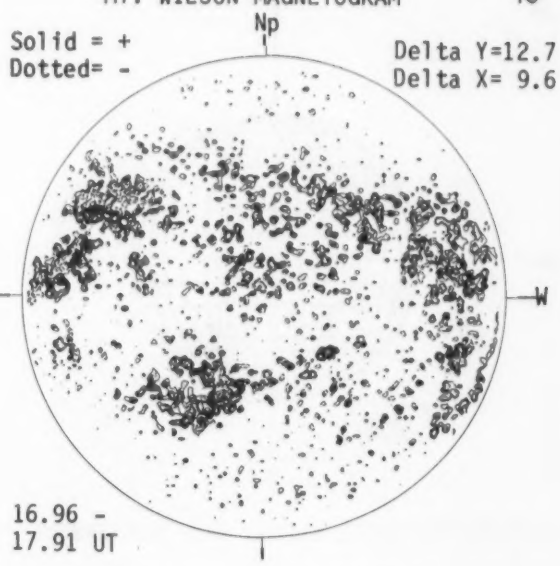
KITT PEAK MAGNETOGRAM



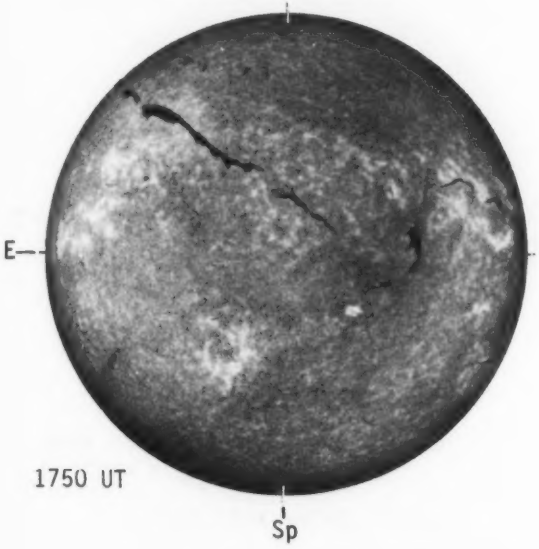
STANFORD MAGNETOGRAM



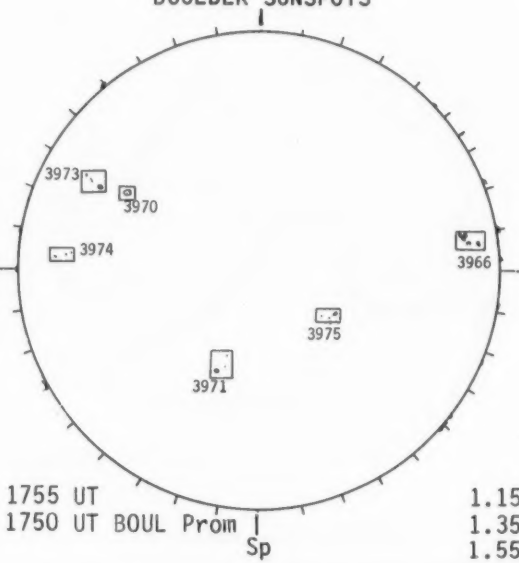
MT. WILSON MAGNETOGRAM



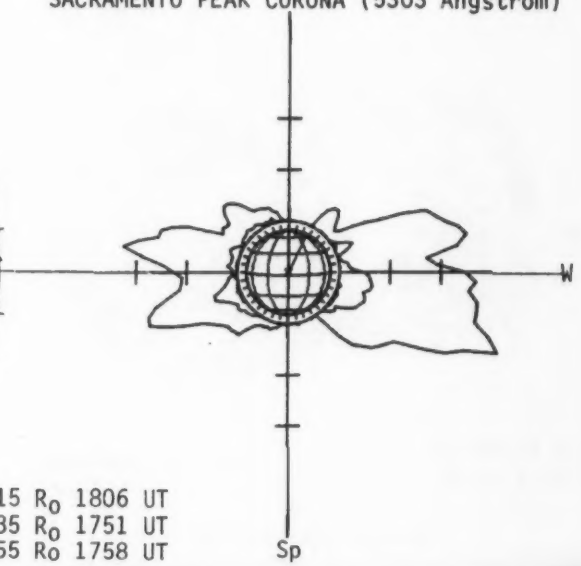
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



N O V E M B E R 04, 1 9 8 2 (P= 24.06, B_o= 4.08, L_o= 283.66)

STANFORD MAGNETOGRAM

MT. WILSON MAGNETOGRAM

Sp

Sp

1.55 Ro 1758 UT

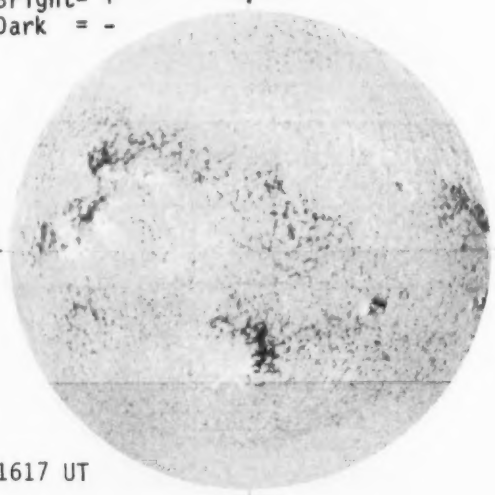
Sp

N O V E M B E R 04, 1 9 8 2 (P= 24.06, B_o= 4.08, L_o= 283.66)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -



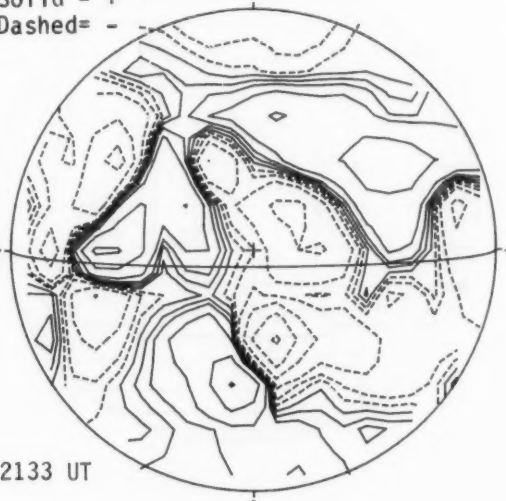
E

1617 UT

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -



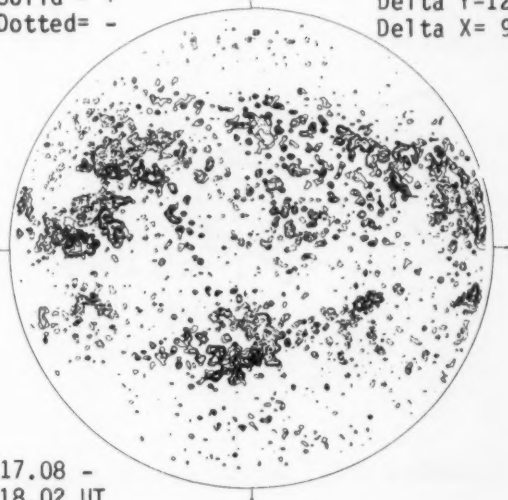
2133 UT

MT. WILSON MAGNETOGRAM

Np

Solid = +
Dotted= -

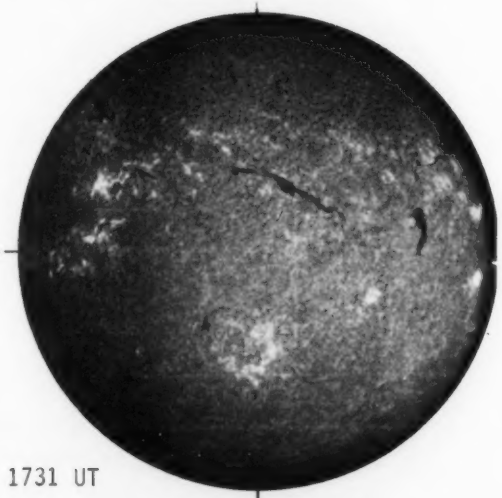
Delta Y=12.7
Delta X= 9.6



W

17.08 -
18.02 UT

HOLLOMAN H-ALPHA

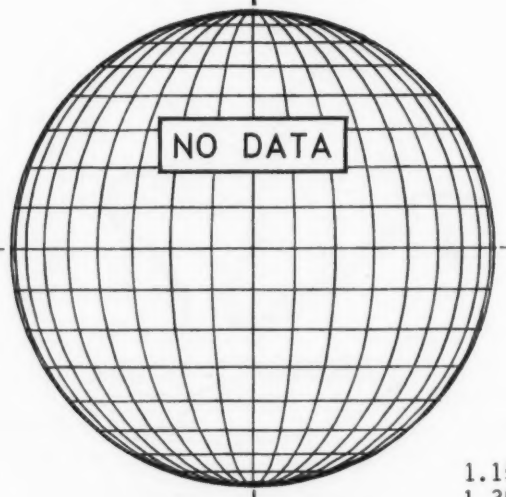


E

1731 UT

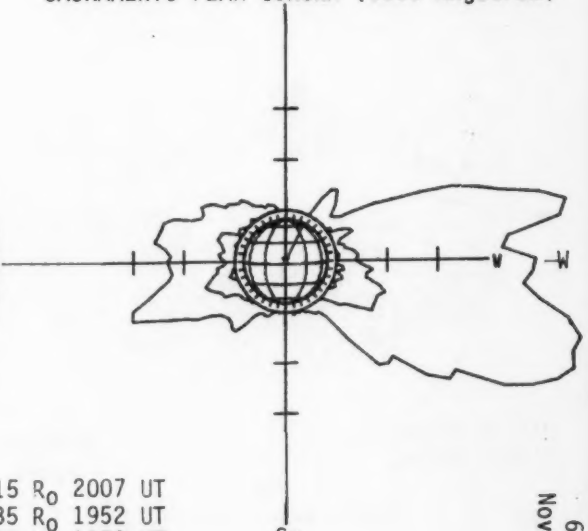
Sp

BOULDER SUNSPOTS



Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)



W

W

1.15 R_o 2007 UT
1.35 R_o 1952 UT
1.55 R_o 1958 UT

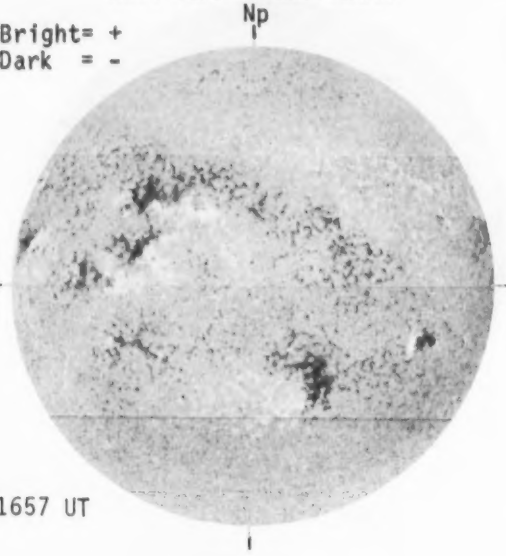
Sp

61
Nov 82

NOVEMBER 05, 1982 (P= 23.87, B_o= 3.97, L_o= 270.47)

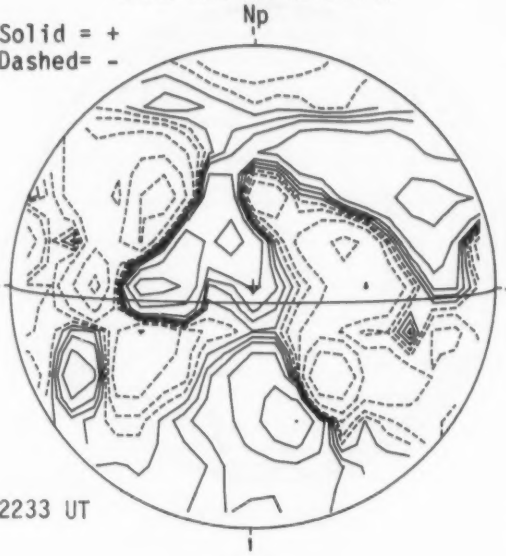
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



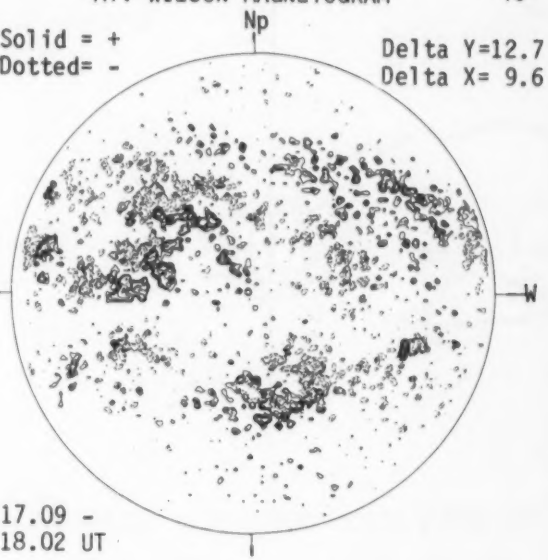
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

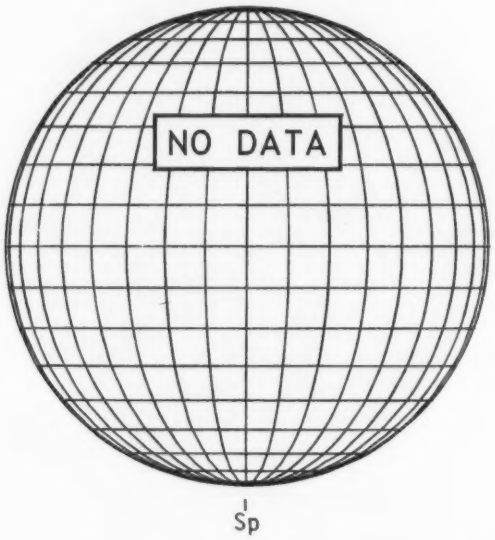


MT. WILSON MAGNETOGRAM

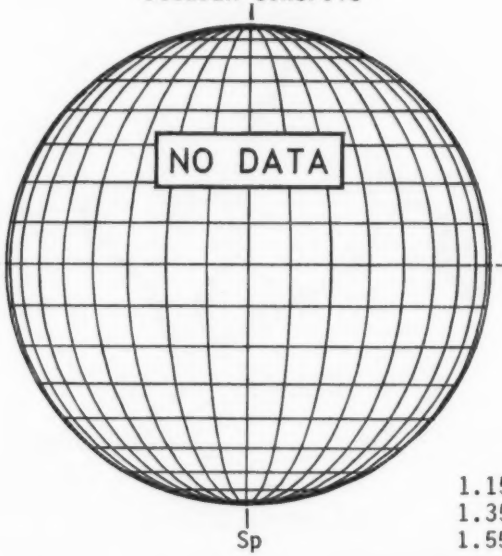
Solid = +
Dotted= -
Delta Y=12.7
Delta X= 9.6



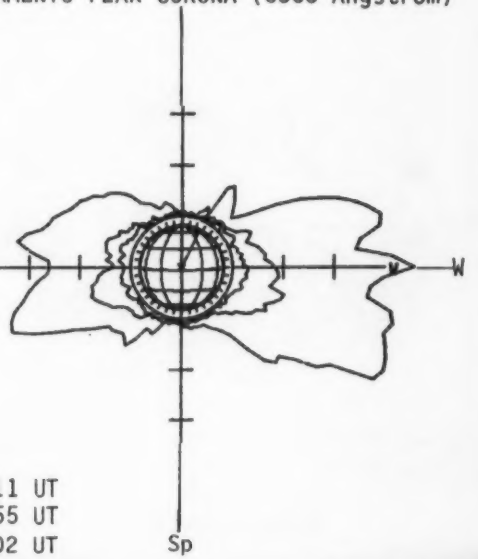
SACRAMENTO PEAK H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



1.15 R_o 1811 UT
1.35 R_o 1755 UT
1.55 R_o 1802 UT

NOVEMBER 06, 1982 (P= 23.67, B_o= 3.86, L_o= 257.29)

Sp

Sp

1.35 R_o 1755 UT
1.55 R_o 1802 UT

Sp

N O V E M B E R 06, 1 9 8 2 (P= 23.67, B_o= 3.86, L_o= 257.29)

MT. WILSON MAGNETOGRAM

Np

Bright= +
Dark = -

E

19.0-20.0 U.

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

2216 UT

MT. WILSON MAGNETOGRAM

Np

Solid = +
Dotted= -

Delta Y=12.6
Delta X= 9.6

W

19.02 -
19.99 UT

BOULDER H-ALPHA

E

1600 UT

Sp

BOULDER SUNSPOTS

NO DATA

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)

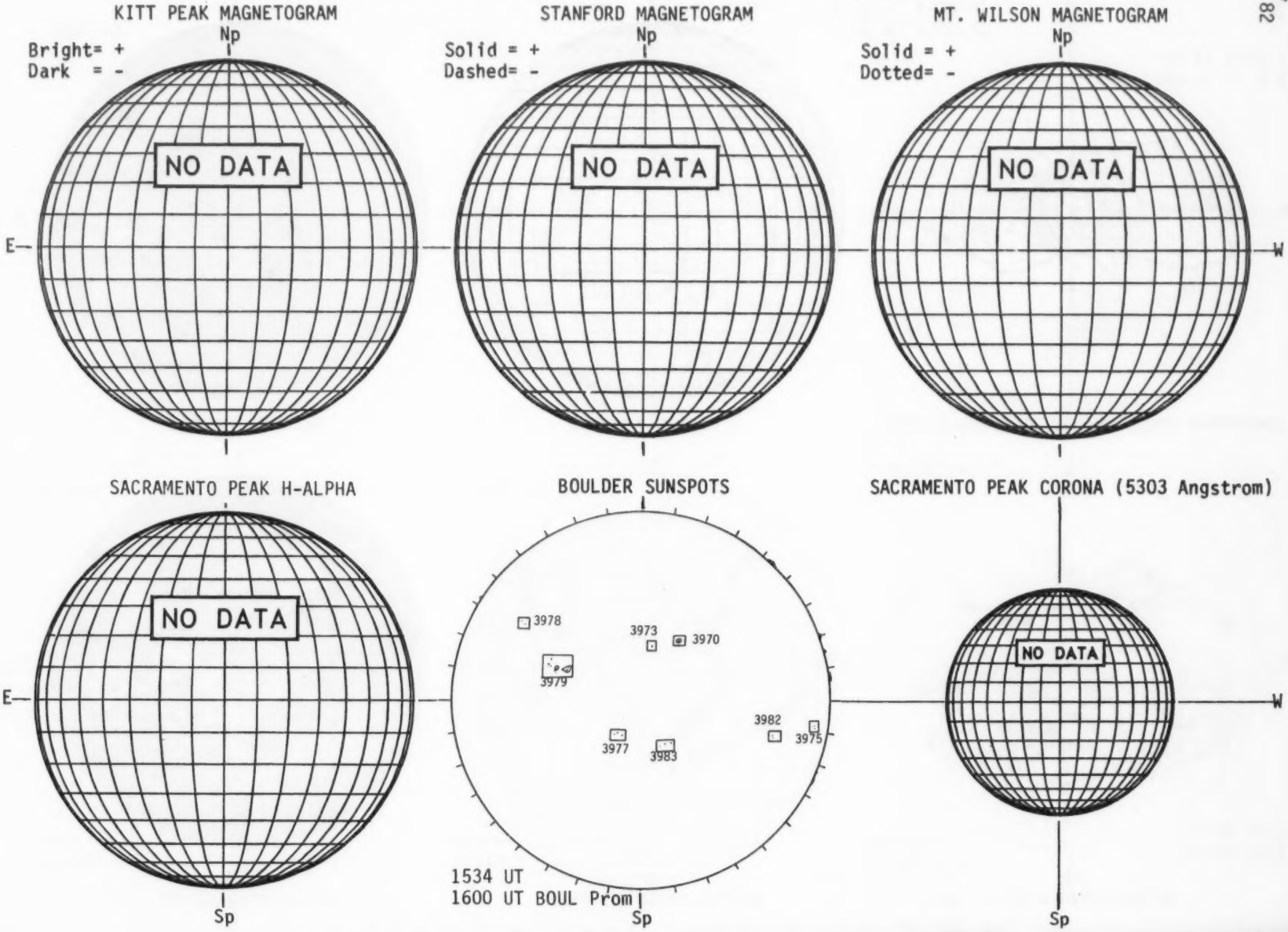
W

1.15 R_o 1601 UT
1.35 R_o 1539 UT
1.55 R_o 1553 UT

Sp

63
Nov 82

N O V E M B E R 07, 1 9 8 2 (P= 23.46, B_o= 3.76, L_o= 244.10)



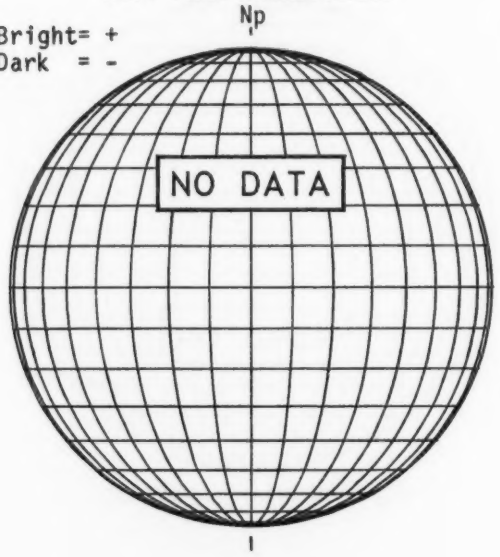
N O V E M B E R 08, 1 9 8 2 (P= 23.25, B_o= 3.65, L_o= 230.92)

Sp Sp Sp

N O V E M B E R 08, 1 9 8 2 (P= 23.25, B_o= 3.65, L_o= 230.92)

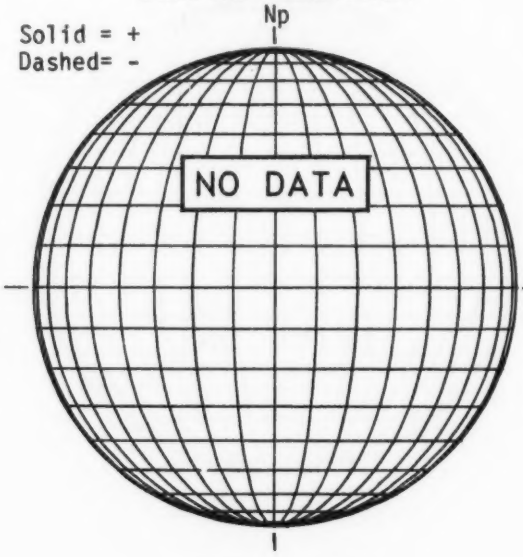
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



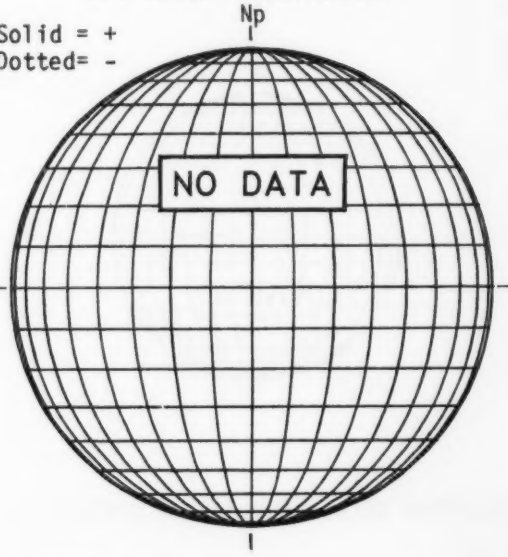
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

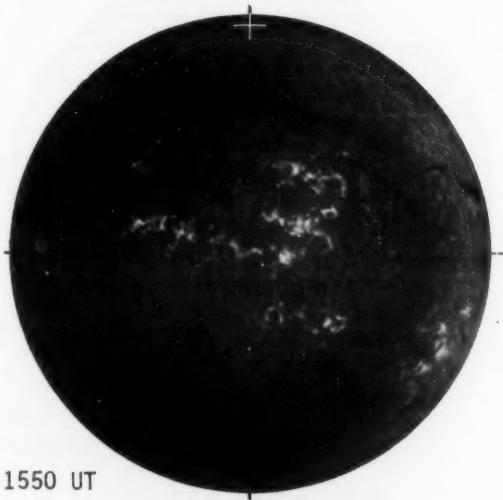


MT. WILSON MAGNETOGRAM

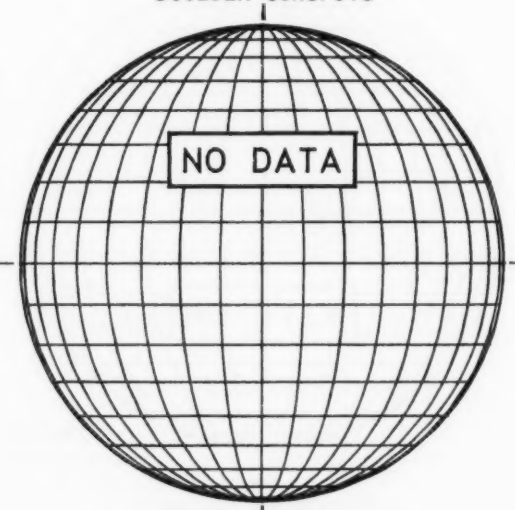
Solid = +
Dotted= -



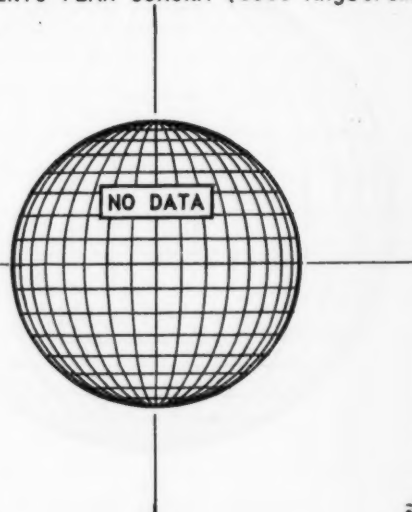
BOULDER H-ALPHA



BOULDER SUNSPOTS

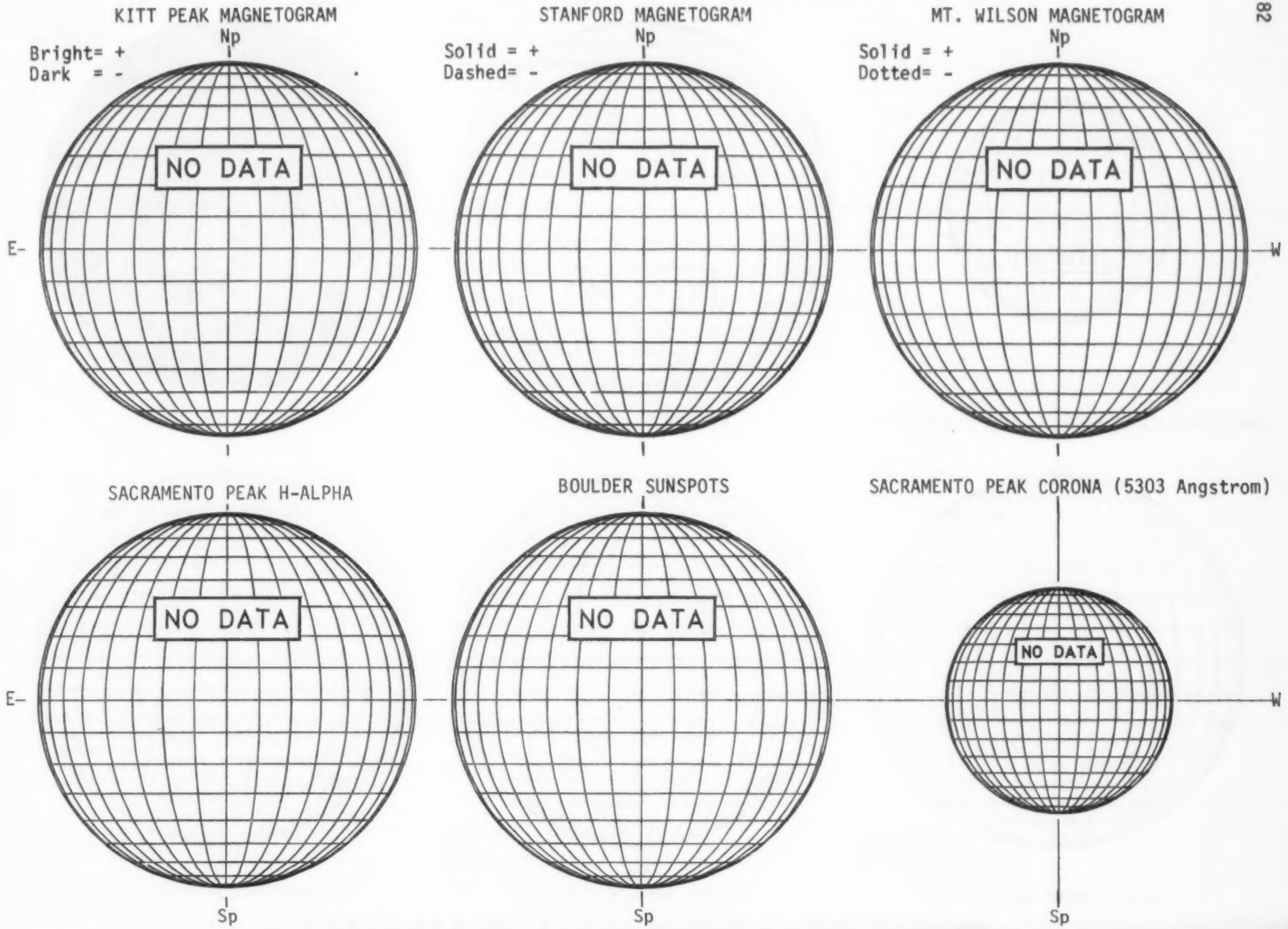


SACRAMENTO PEAK CORONA (5303 Angstrom)



65
Nov 82

N O V E M B E R 09, 1 9 8 2 (P= 23.02, B_o= 3.54, L_o= 217.73)



N O V E M B E R 10, 1 9 8 2 (P= 22.79, B_o= 3.43, L_o= 204.55)

Sp

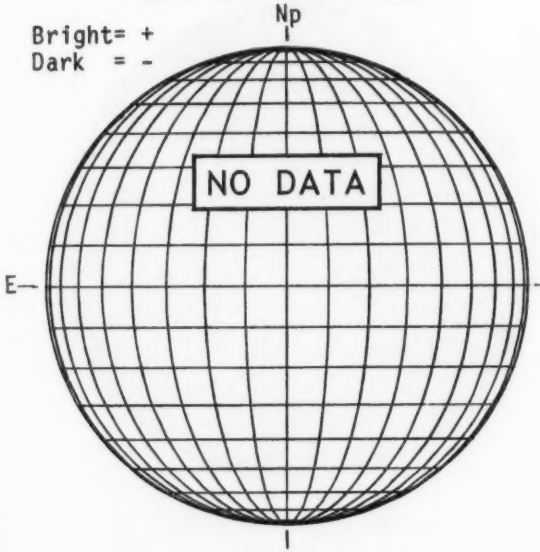
Sp

Sp

N O V E M B E R 10, 1 9 8 2 (P= 22.79, B_o= 3.43, L_o= 204.55)

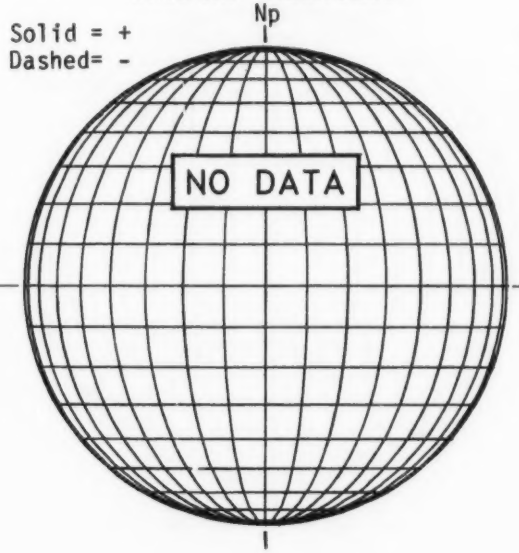
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



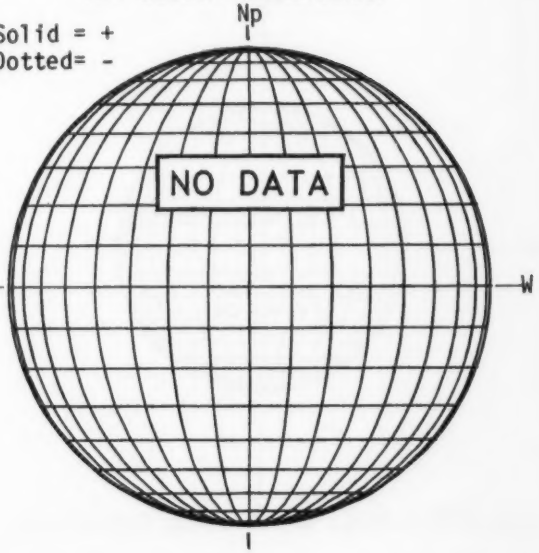
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

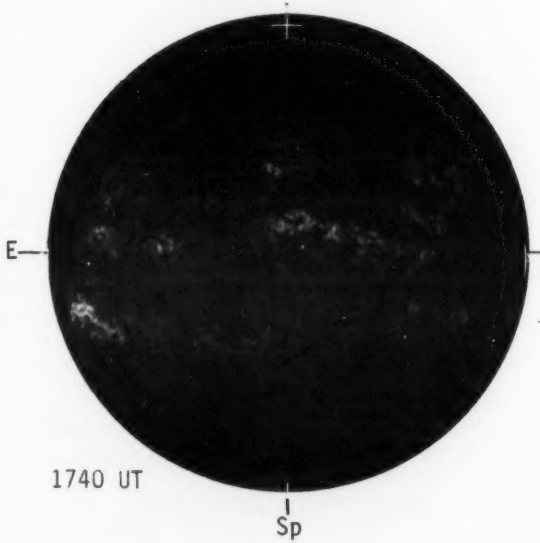


MT. WILSON MAGNETOGRAM

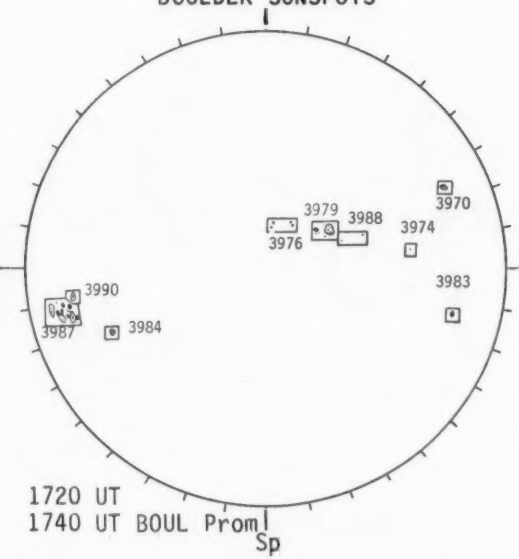
Solid = +
Dotted= -



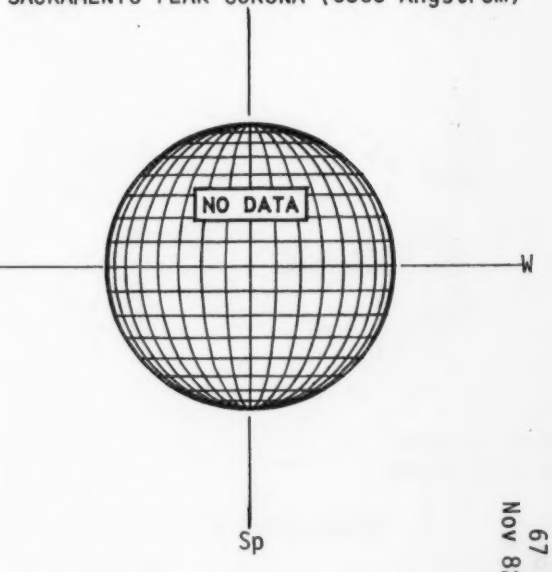
BOULDER H-ALPHA



BOULDER SUNSPOTS



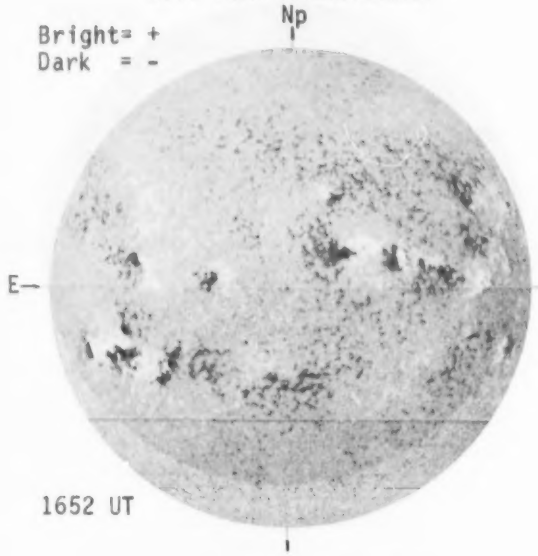
SACRAMENTO PEAK CORONA (5303 Angstrom)



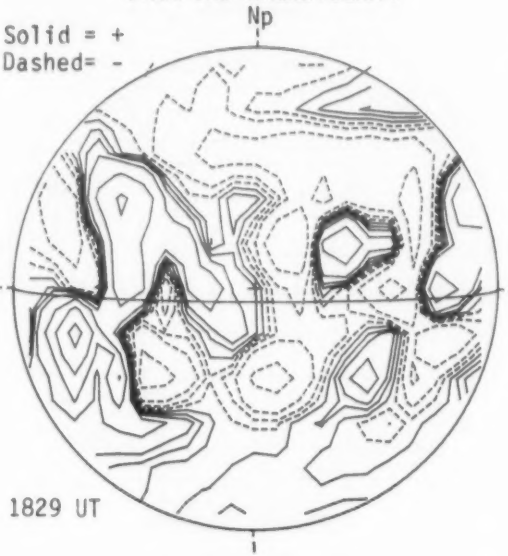
67
Nov 82

N O V E M B E R 11, 1 9 8 2 (P= 22.55, B_0= 3.31, L_0= 191.36)

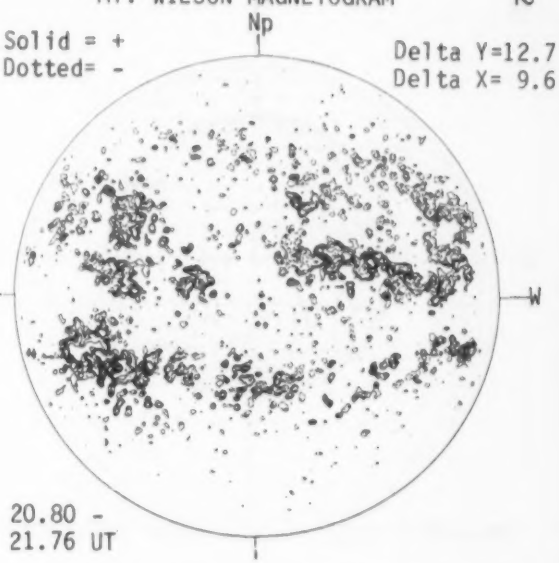
KITT PEAK MAGNETOGRAM



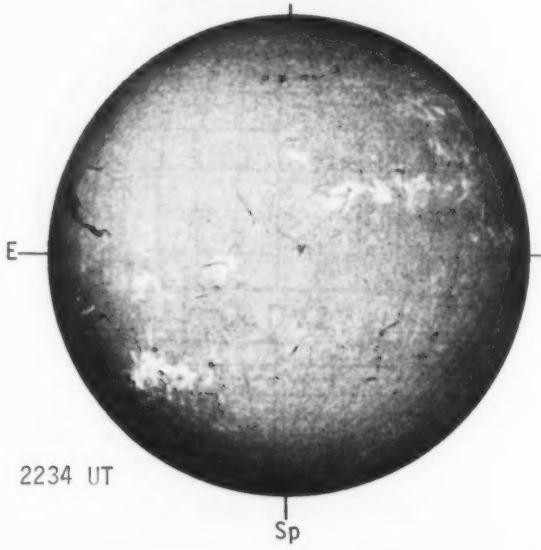
STANFORD MAGNETOGRAM



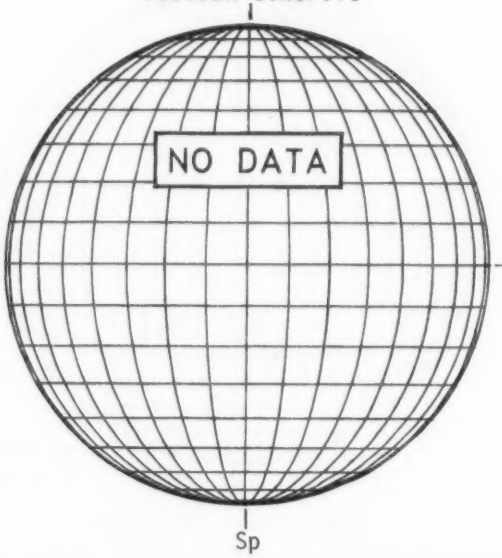
MT. WILSON MAGNETOGRAM



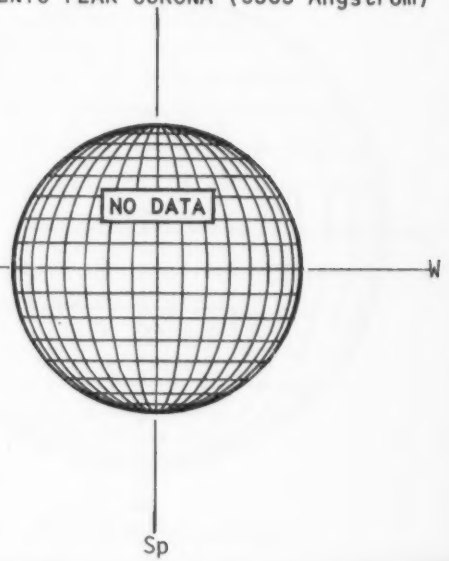
SAN FERNANDO H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



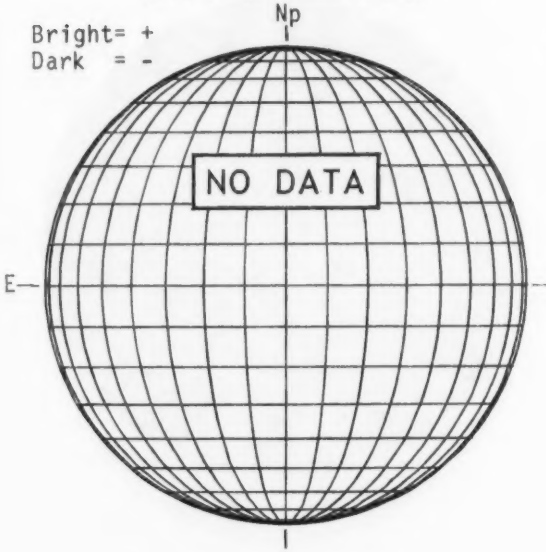
N O V E M B E R 12, 1 9 8 2 (P= 22.31, B_0= 3.20, L_0= 178.18)

Sp Sp Sp

N O V E M B E R 12, 1 9 8 2 (P= 22.31, B_o= 3.20, L_o= 178.18)

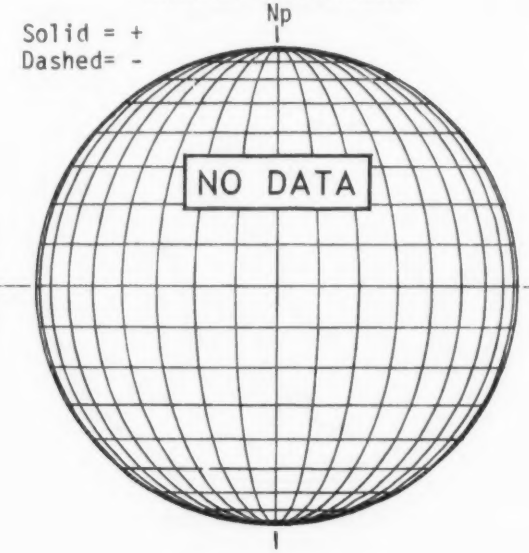
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



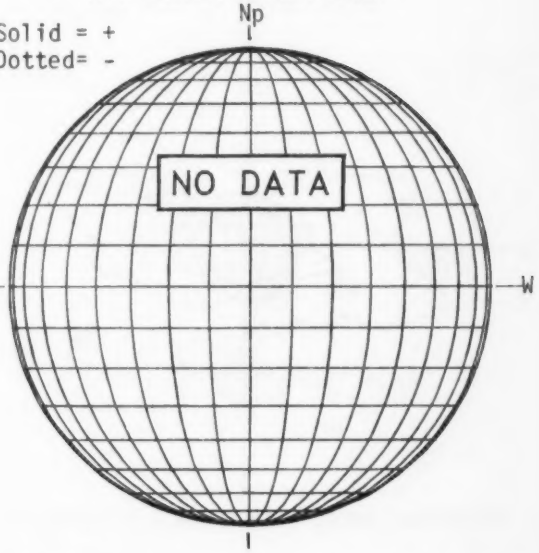
STANFORD MAGNETOGRAM

Solid = +
Dashed= -



MT. WILSON MAGNETOGRAM

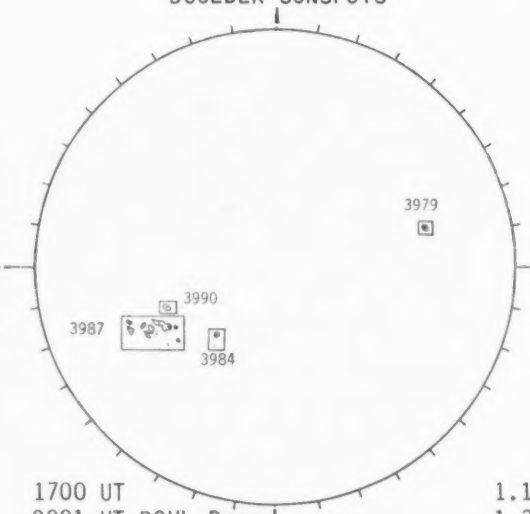
Solid = +
Dotted= -



BOULDER H-ALPHA

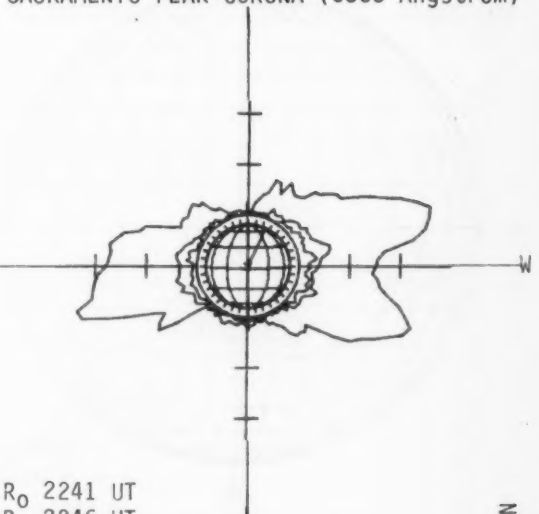
2001 UT

BOULDER SUNSPOTS



1700 UT
2001 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)



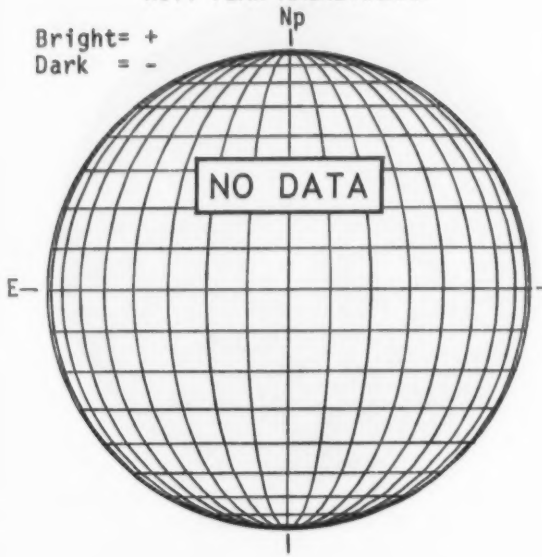
1.15 R_o 2241 UT
1.35 R_o 2246 UT
1.55 R_o 2253 UT

69
Nov 82

N O V E M B E R 13, 1 9 8 2 (P= 22.05, B_0= 3.08, L_0= 165.00)

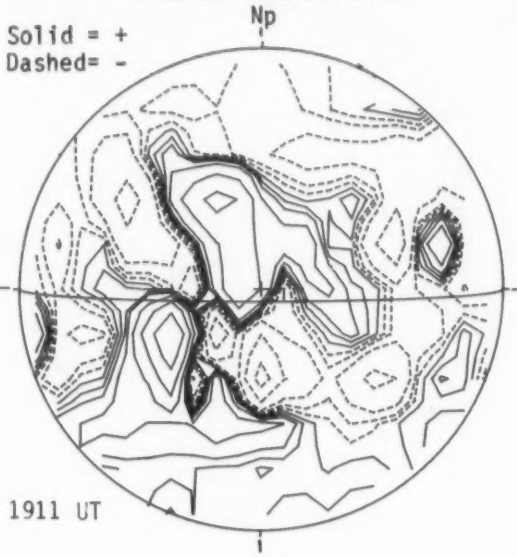
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

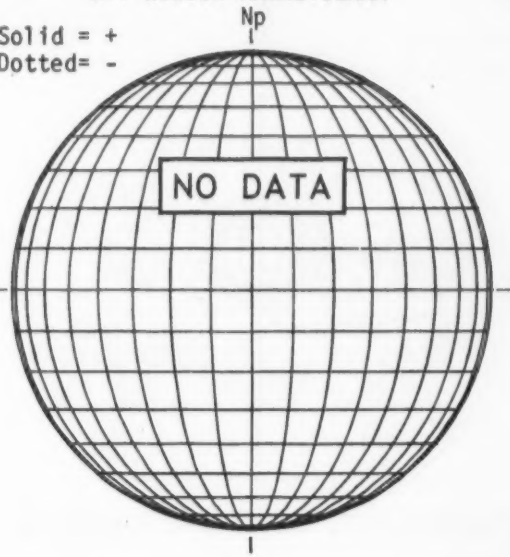
Solid = +
Dashed= -



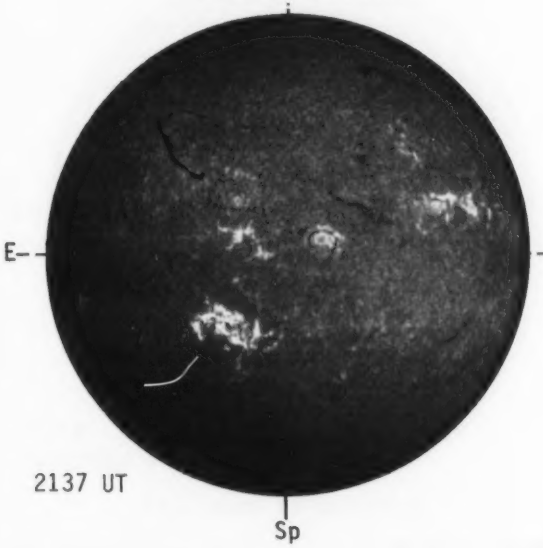
1911 UT

MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

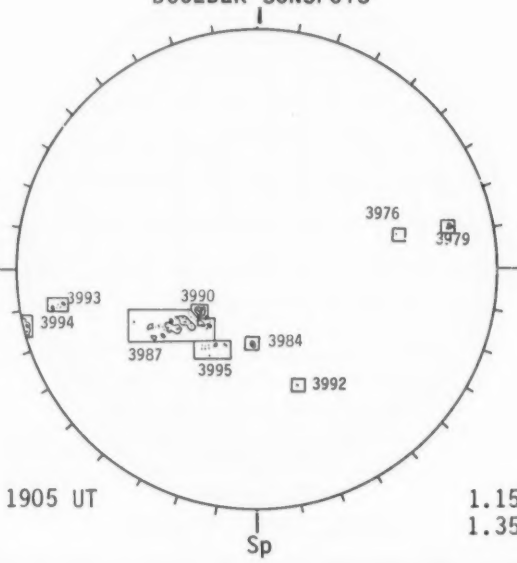


HOLLOMAN H-ALPHA



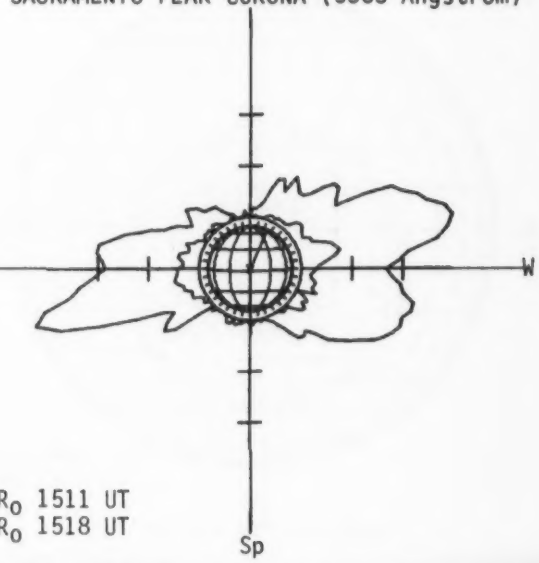
2137 UT

BOULDER SUNSPOTS



1905 UT

SACRAMENTO PEAK CORONA (5303 Angstrom)



1.15 R_O 1511 UT
1.35 R_O 1518 UT

N O V E M B E R 14, 1 9 8 2 (P= 21.79, B_o= 2.97, L_o= 151.81)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -

E

1726 UT

Sp

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

2230 UT

Sp

MT. WILSON MAGNETOGRAM

Np

Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6

W

17.53 -
18.47 UT

Sp

HOLLOMAN H-ALPHA

E

2040 UT

Sp

BOULDER SUNSPOTS

NO DATA

Sp

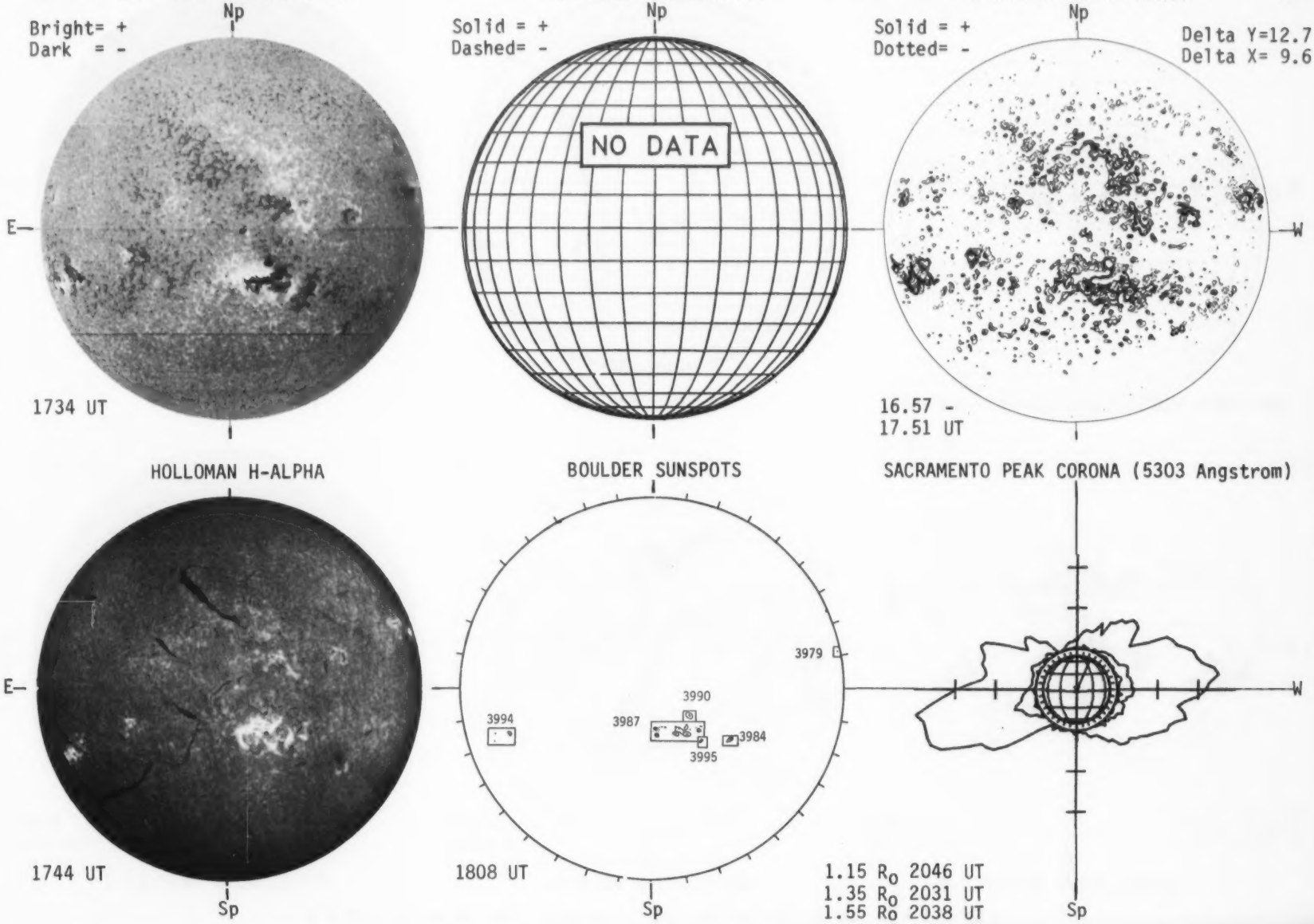
SACRAMENTO PEAK CORONA (5303 Angstrom)

W

1.15 R_o 2235 UT
1.35 R_o 2241 UT
1.55 R_o 2248 UT

Sp

NOVEMBER 15, 1982 (P= 21.52, B_0= 2.85, L_0= 138.63)



1744 UT

Sp

1808 UT

Sp

1.15 R_o 2046 UT
1.35 R_o 2031 UT
1.55 Ro 2038 UT

Sp

N O V E M B E R 16, 1 9 8 2 (P= 21.25, B_o= 2.74, L_o= 125.45)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

Np

NO DATA

E

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

Np

2055 UT

MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

Np

NO DATA

W

BOULDER H-ALPHA

E

1715 UT

Sp

BOULDER SUNSPOTS

Boul 796
3990
3987
3984
3994
3995

1515 UT
1715 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)

NO DATA

W

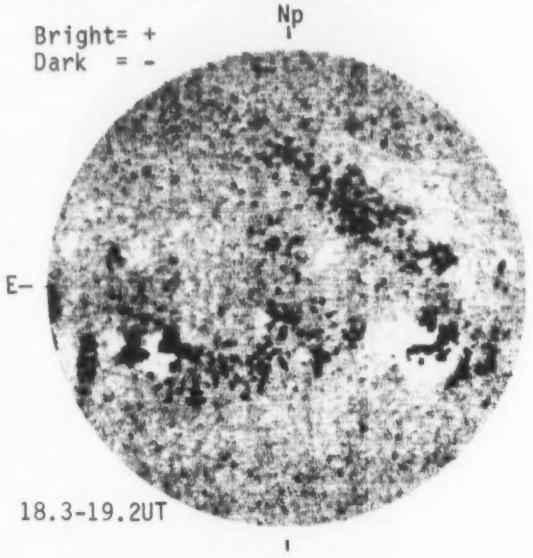
Sp

73
Nov 82

N O V E M B E R 17, 1 9 8 2 (P= 20.96, B_o= 2.62, L_o= 112.27)

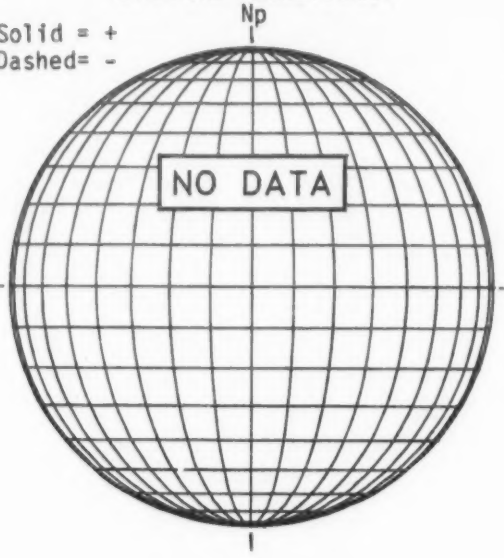
MT. WILSON MAGNETO GRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

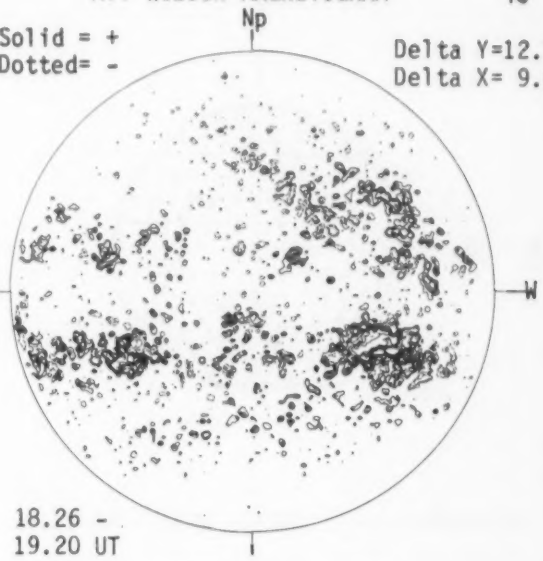
Solid = +
Dashed= -



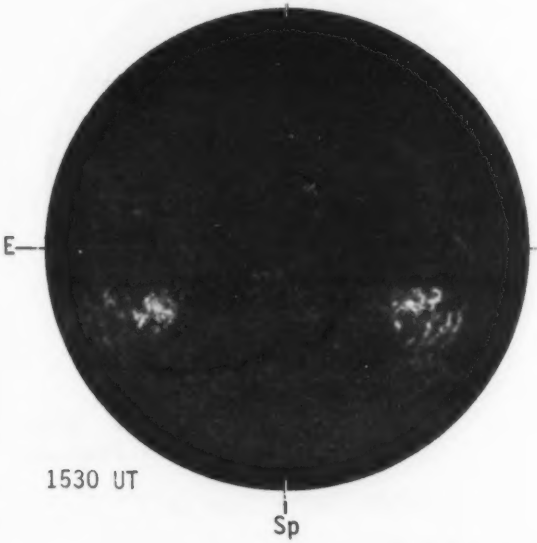
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

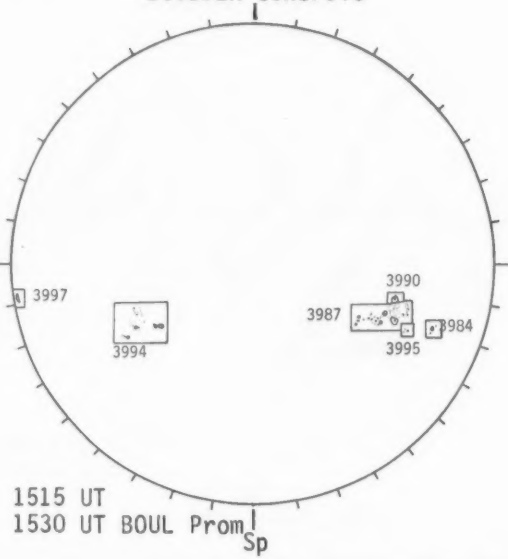
Delta Y=12.7
Delta X= 9.6



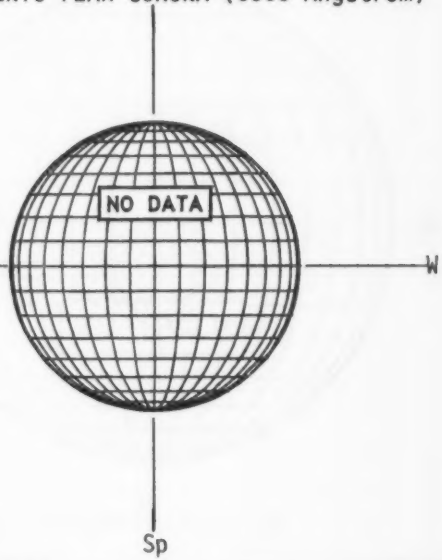
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



Sp

1530 UT BOUL Prom

Sp

Sp

N O V E M B E R 18, 1 9 8 2 (P= 20.67, B_o= 2.50, L_o= 99.09)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

Np

NO DATA

E

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

Np

NO DATA

MT. WILSON MAGNETOGRAM

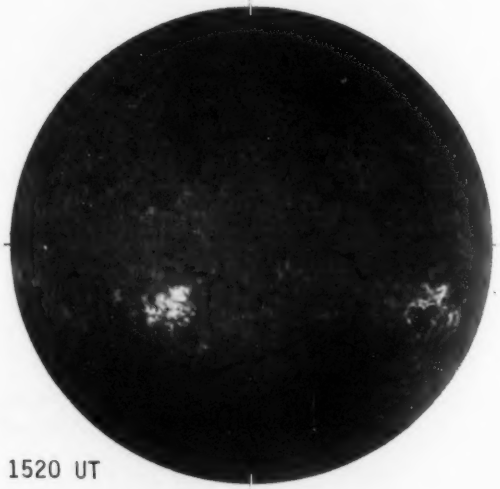
Solid = +
Dotted= -

Np

NO DATA

W

BOULDER H-ALPHA

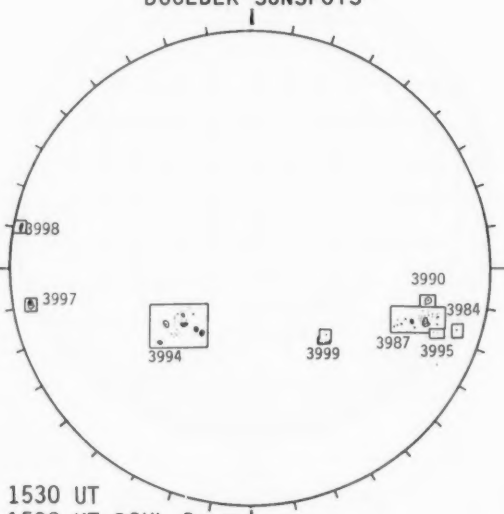


E

1520 UT

Sp

BOULDER SUNSPOTS



1530 UT
1520 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)

NO DATA

W

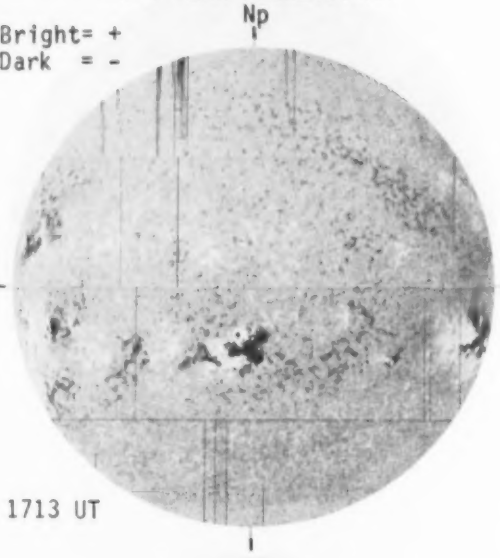
Sp

75
Nov 82

N O V E M B E R 19, 1 9 8 2 (P= 20.37, B_0= 2.38, L_0= 85.90)

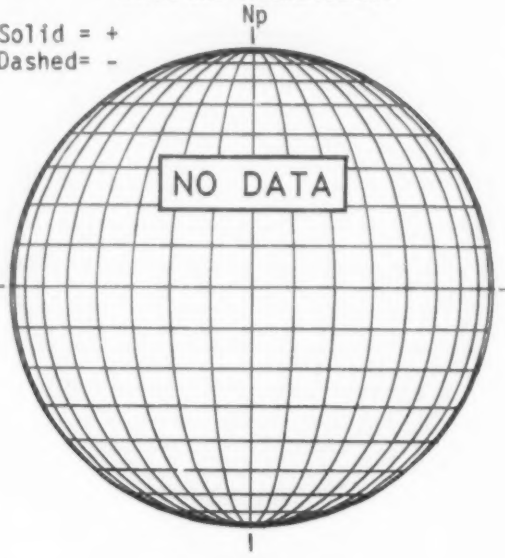
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

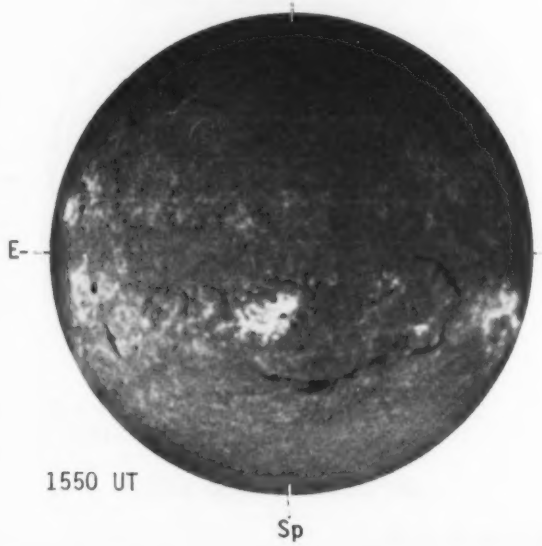
Solid = +
Dashed= -



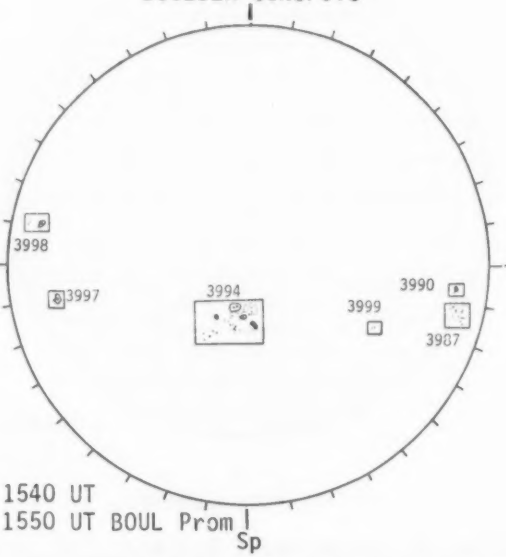
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

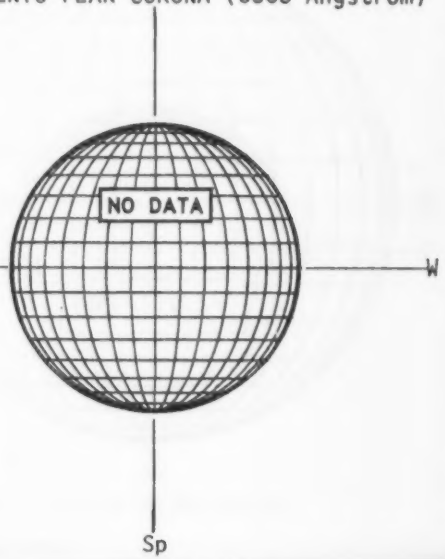
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



N O V E M B E R 20, 1 9 8 2 (P= 20.06, B_0= 2.26, L_0= 72.72)

Sp

1550 UT BOUL Prom

Sp

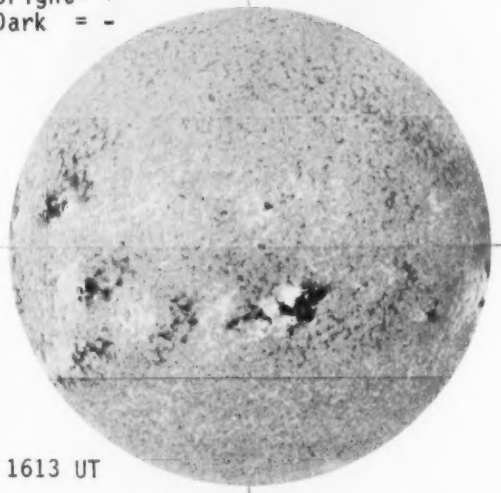
Sp

N O V E M B E R 20, 1 9 8 2 (P= 20.06, B_o= 2.26, L_o= 72.72)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -



E

1613 UT

Sp

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

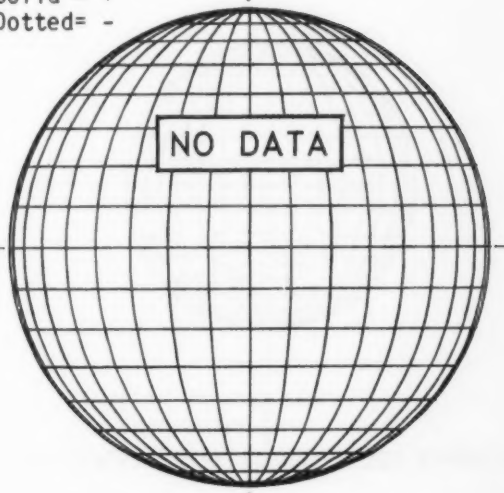
1907 UT

Sp

MT. WILSON MAGNETOGRAM

Np

Solid = +
Dotted= -



W

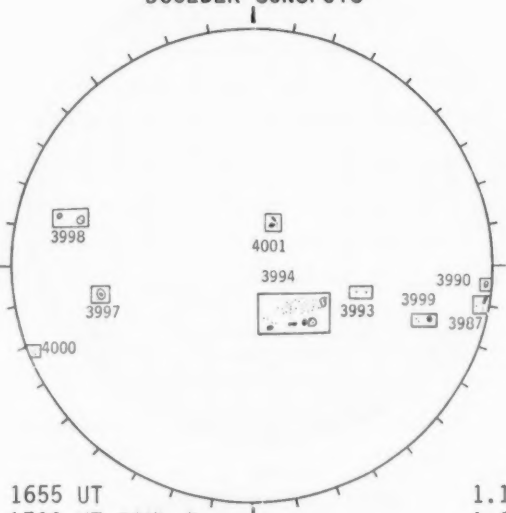
BOULDER H-ALPHA

E

1700 UT

Sp

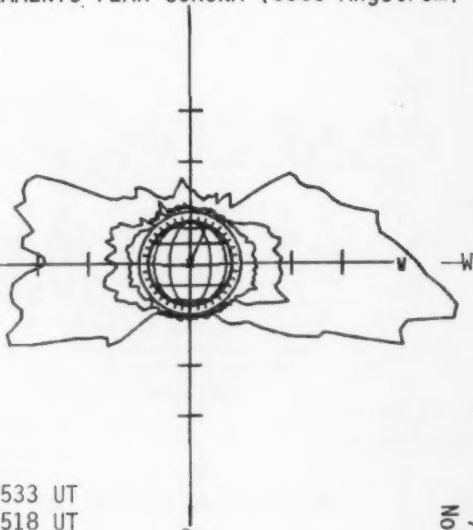
BOULDER SUNSPOTS



1655 UT
1700 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)



W

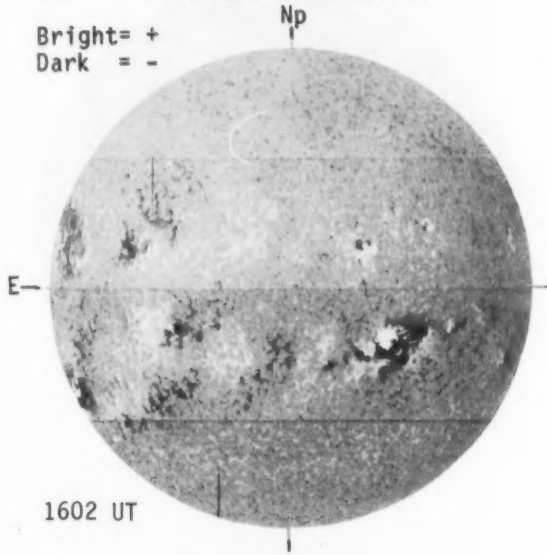
1.15 R_o 1533 UT
1.35 R_o 1518 UT
1.55 R_o 1546 UT

Sp

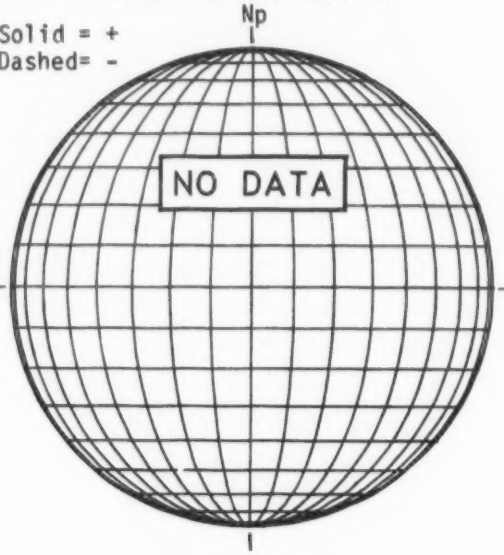
77
Nov 82

N O V E M B E R 21, 1 9 8 2 (P= 19.75, B_o= 2.14, L_o= 59.54)

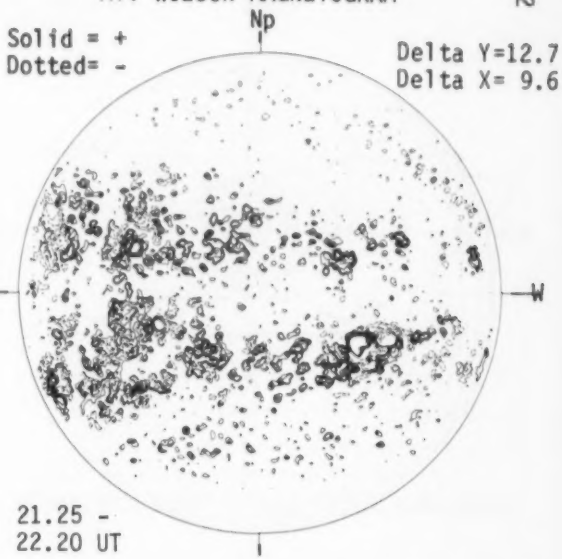
KITT PEAK MAGNETOGRAM



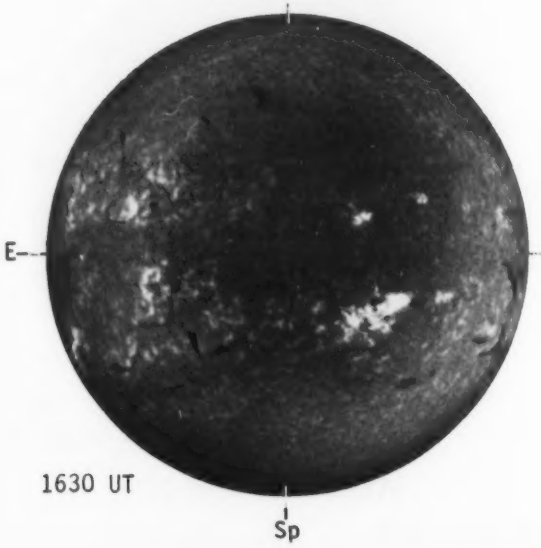
STANFORD MAGNETOGRAM



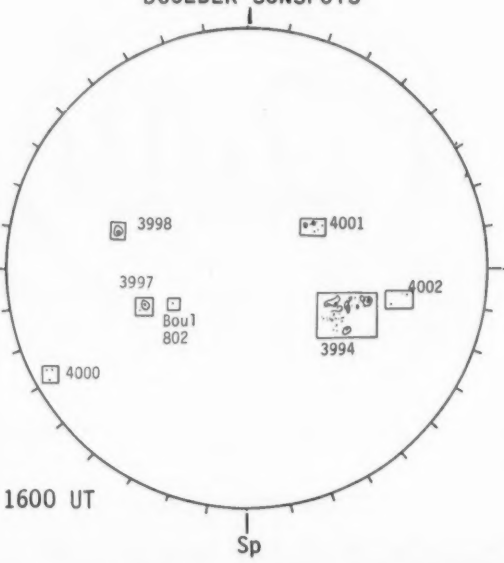
MT. WILSON MAGNETOGRAM



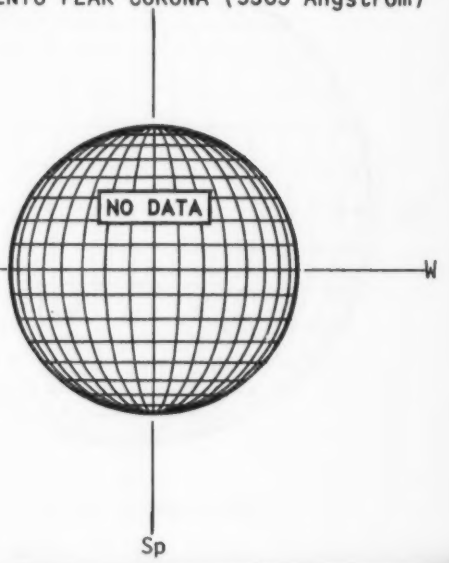
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



N O V E M B E R 22, 1 9 8 2 (P= 19.43, B_o= 2.01, L_o= 46.36)

1600 UT

Sp

Sp

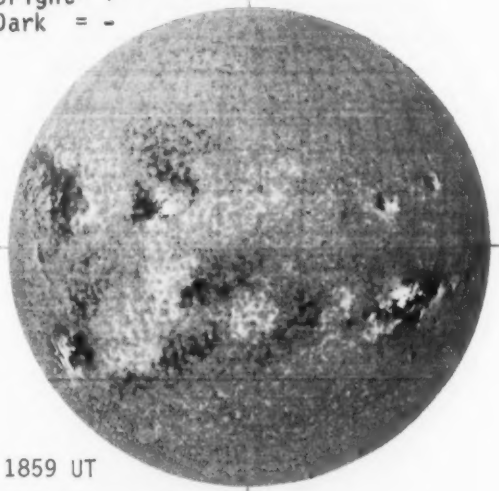
Sp

N O V E M B E R 22, 1 9 8 2 (P= 19.43, B_o= 2.01, L_o= 46.36)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

Np



E

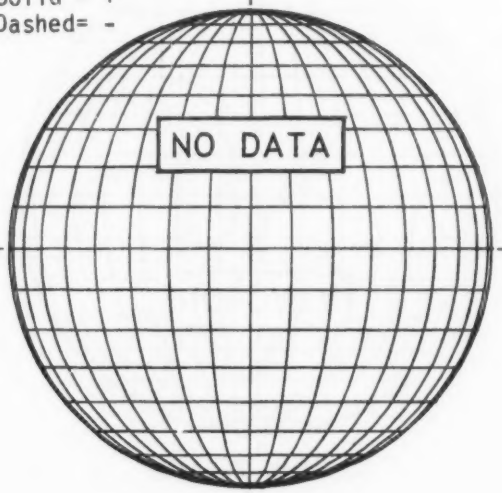
1859 UT

Sp

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

Np



Sp

MT. WILSON MAGNETOGRAM

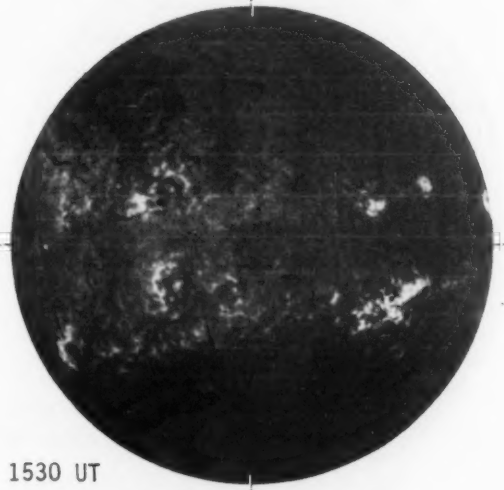
Solid = +
Dotted= -

Np

W

Sp

BOULDER H-ALPHA

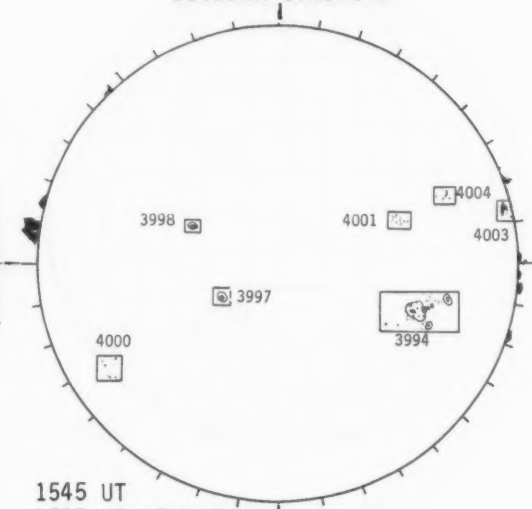


E

1530 UT

Sp

BOULDER SUNSPOTS



1545 UT
1530 UT BOUL Prom

Sp

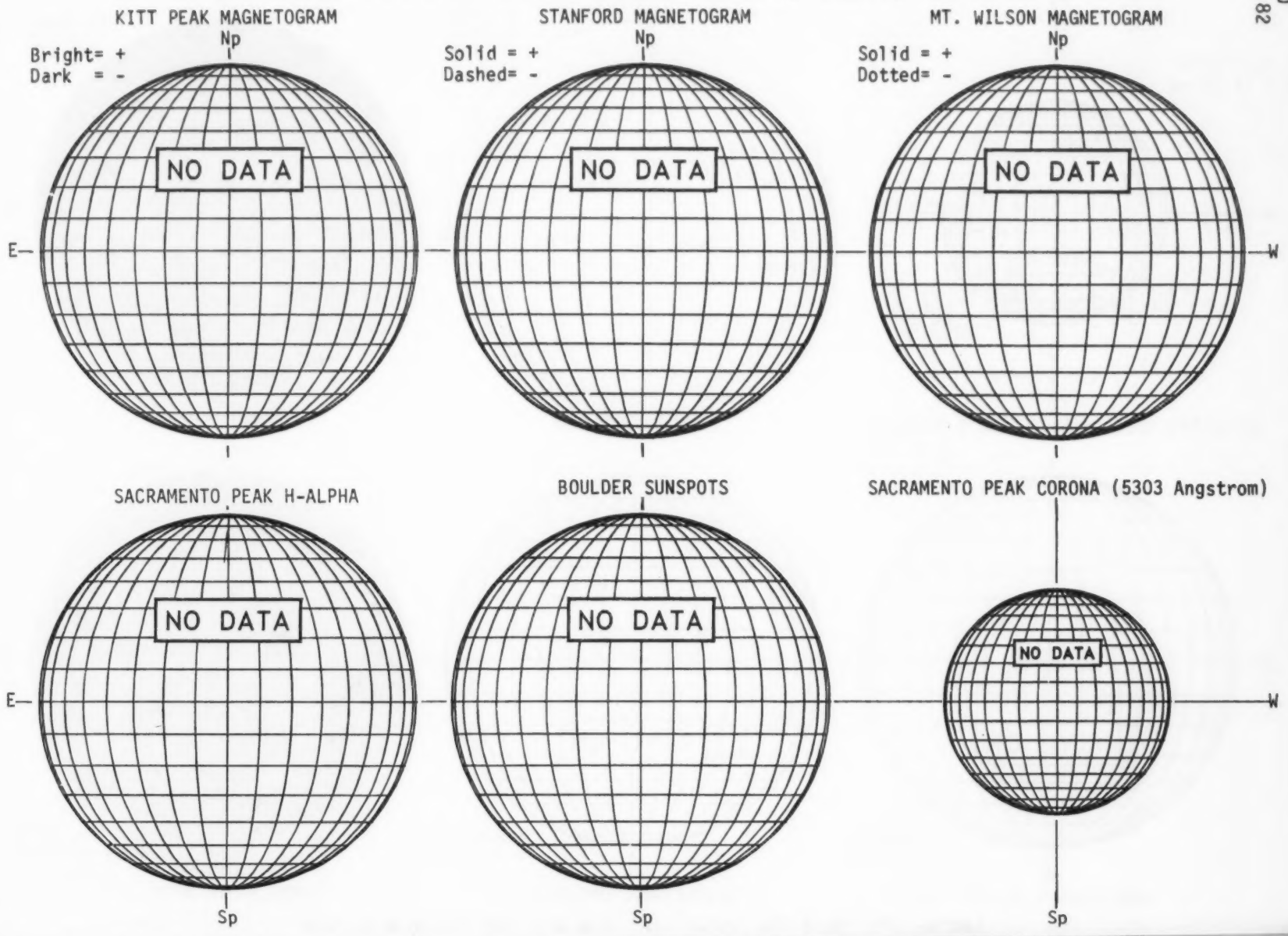
SACRAMENTO PEAK CORONA (5303 Angstrom)

W

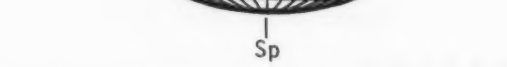
Sp

79
Nov 82

N O V E M B E R 23, 1 9 8 2 (P= 19.10, B_0= 1.89, L_0= 33.18)



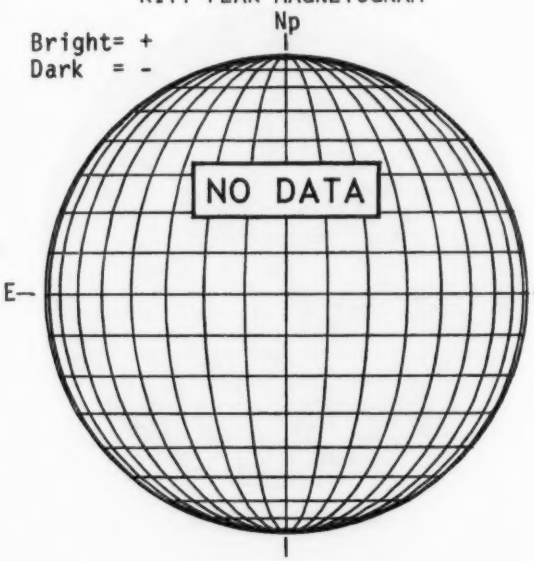
N O V E M B E R 24, 1 9 8 2 (P= 18.77, B_0= 1.77, L_0= 20.00)



N O V E M B E R 24, 1 9 8 2 (P= 18.77, B_o= 1.77, L_o= 20.00)

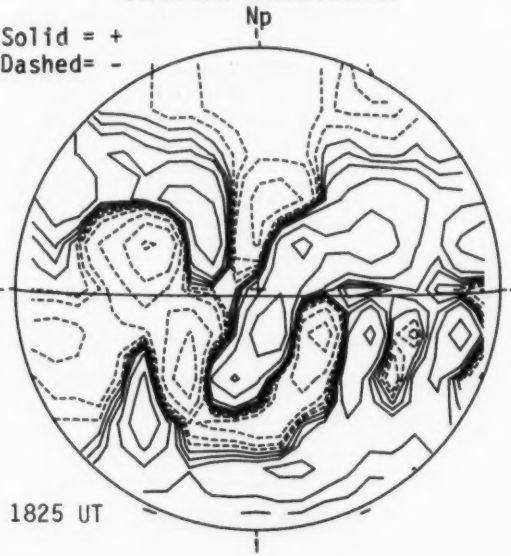
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



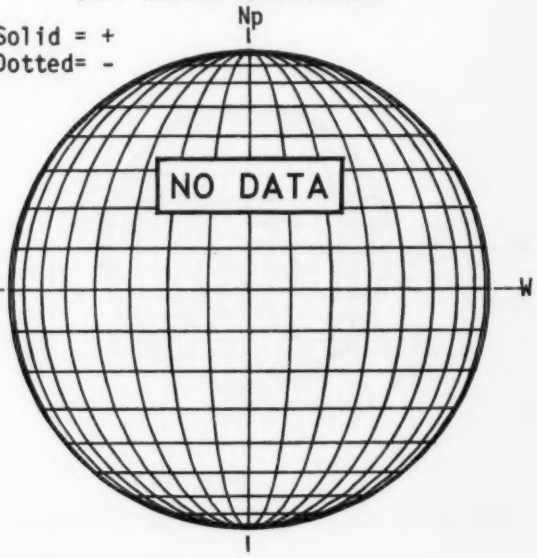
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

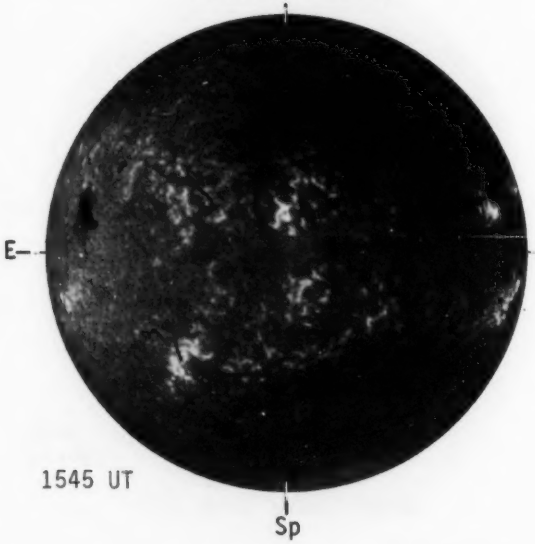


.MT. WILSON MAGNETOGRAM

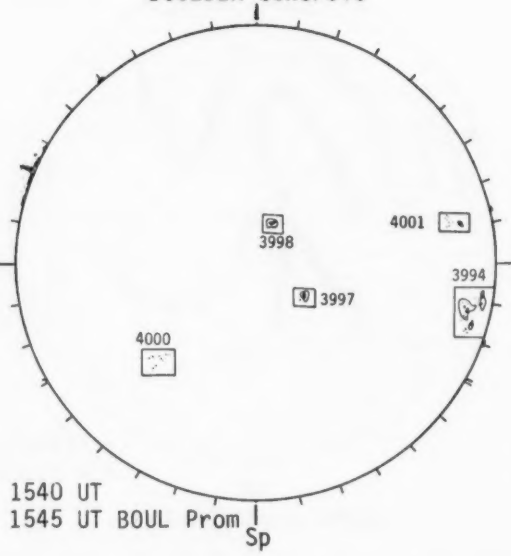
Solid = +
Dotted= -



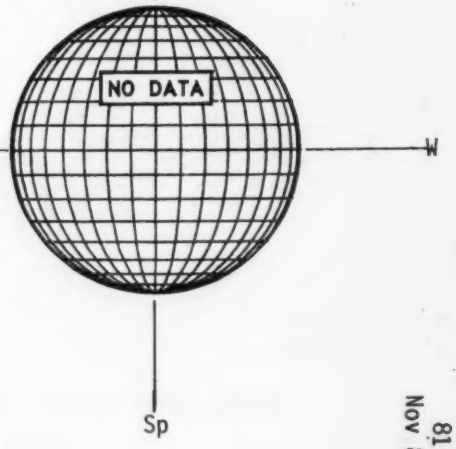
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



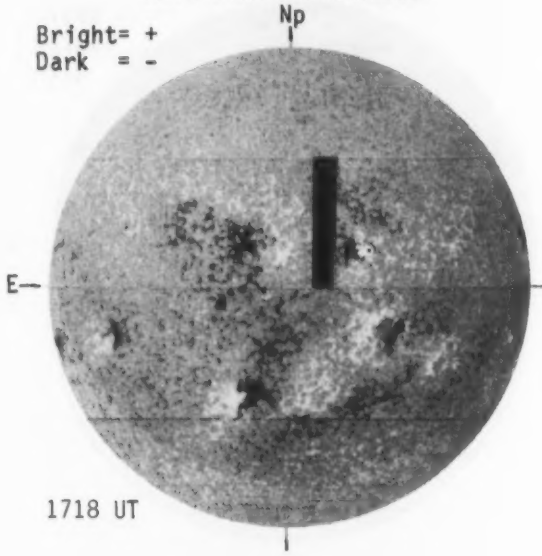
81
Nov 82

N O V E M B E R 25, 1 9 8 2 (P= 18.43, B_o= 1.64, L_o= 6.82)

Nov 82

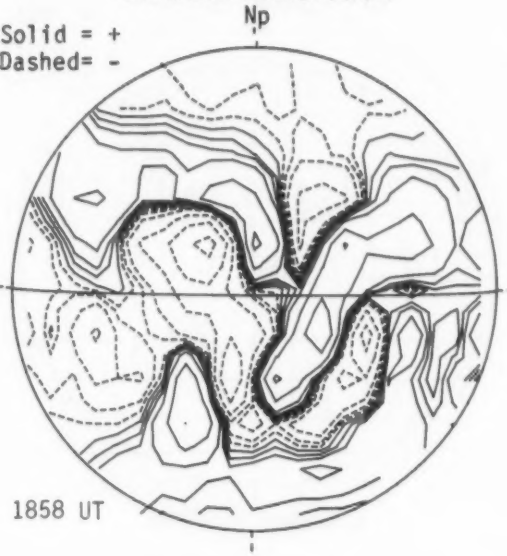
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

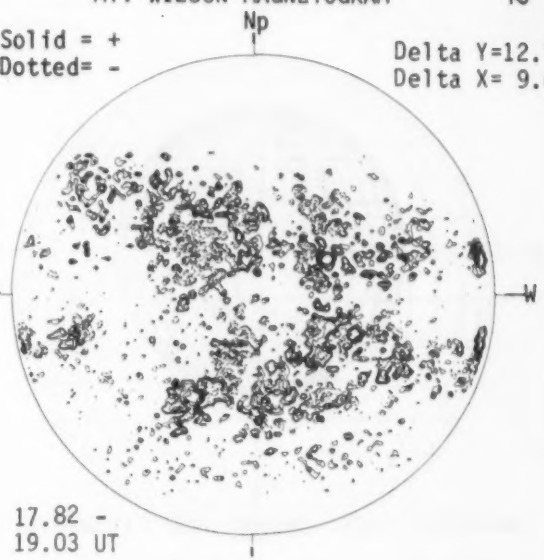
Solid = +
Dashed= -



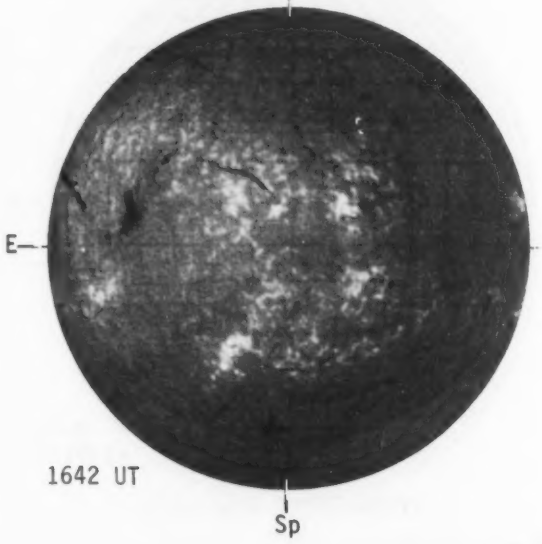
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

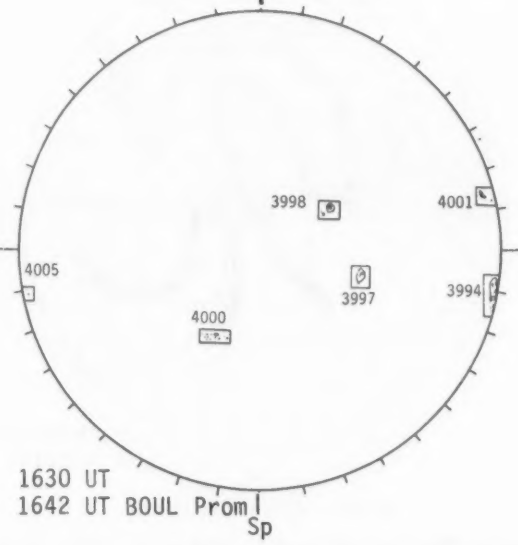
Delta Y=12.7
Delta X= 9.6



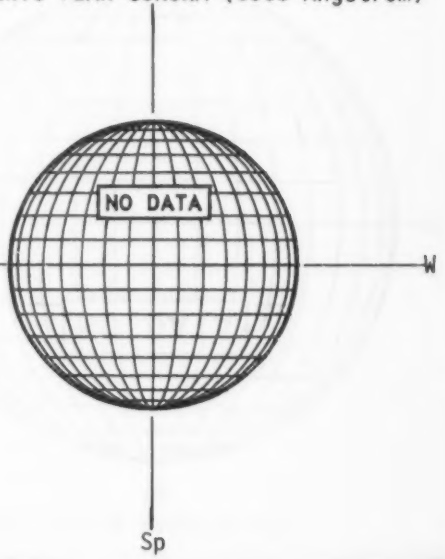
BOULDER H-ALPHA



BOULDER SUNSPOTS



SACRAMENTO PEAK CORONA (5303 Angstrom)



Sp

1642 UT BOUL Prom

Sp

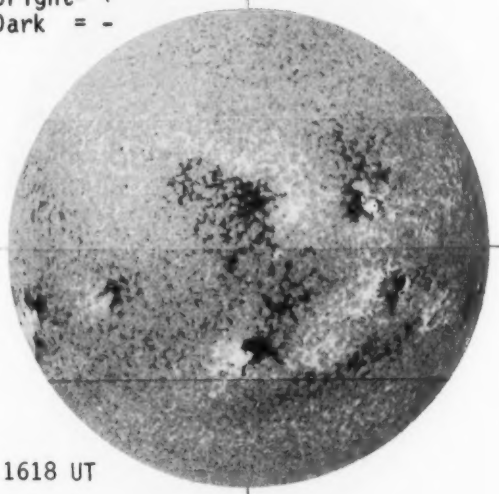
Sp

N O V E M B E R 26, 1 9 8 2 (P= 18.08, B_o= 1.52, L_o= 353.64)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -



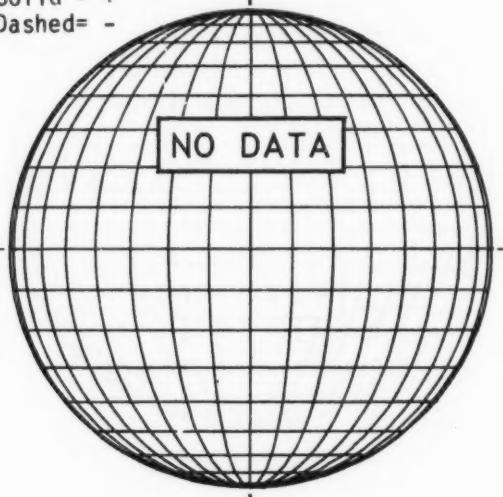
E

1618 UT

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

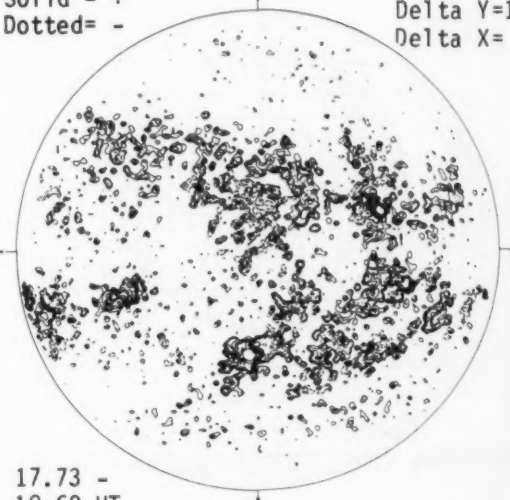


MT. WILSON MAGNETOGRAM

Np

Solid = +
Dotted= -

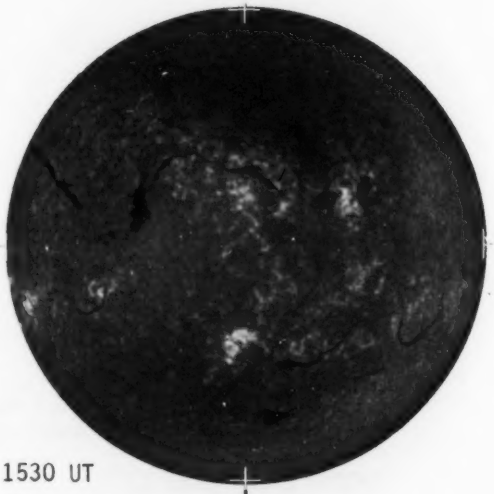
Delta Y=12.7
Delta X= 9.6



W

17.73 -
18.69 UT

BOULDER H-ALPHA

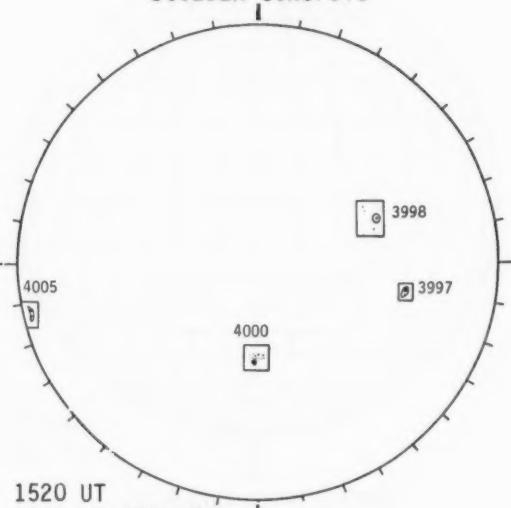


E

1530 UT

Sp

BOULDER SUNSPOTS



1520 UT
1530 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)

W

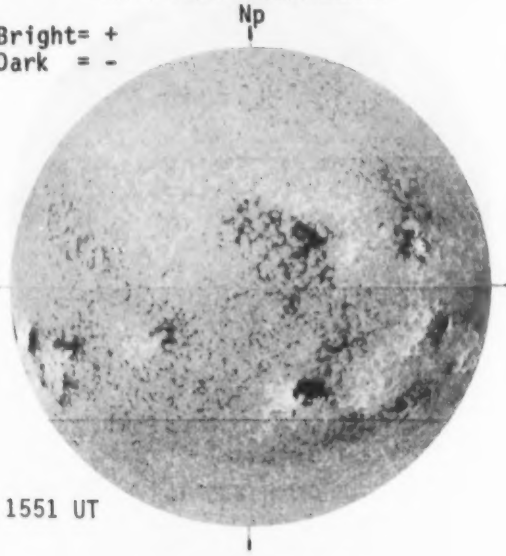
Sp

83
Nov 82

N O V E M B E R 27, 1 9 8 2 (P= 17.72, B_0= 1.39, L_0= 340.46)

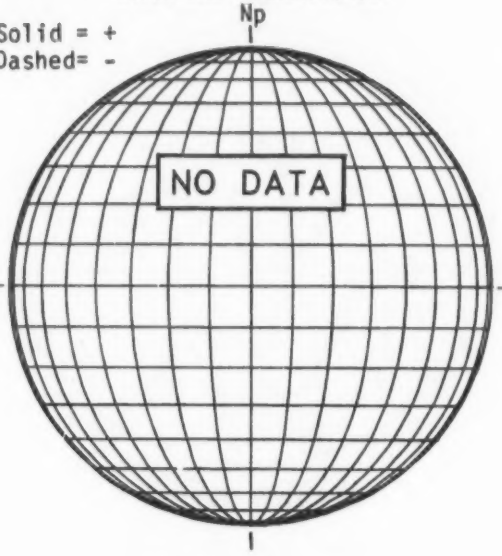
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



STANFORD MAGNETOGRAM

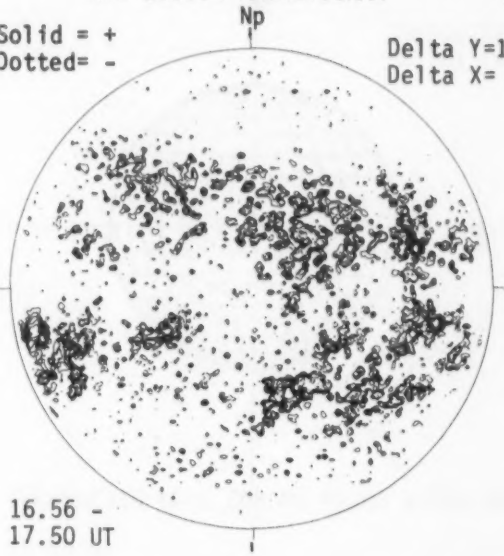
Solid = +
Dashed= -



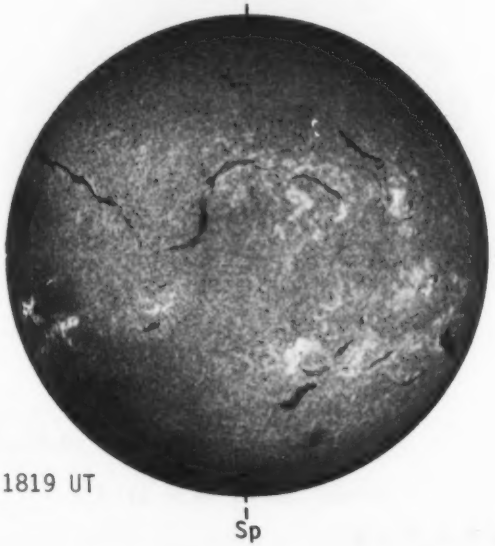
MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

Delta Y=12.7
Delta X= 9.6



HOLLOMAN H-ALPHA



BOULDER SUNSPOTS

SACRAMENTO PEAK CORONA (5303 Angstrom)

Sp

Sp

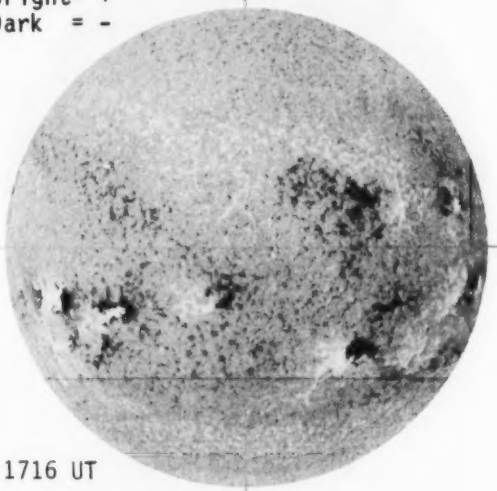
Sp

N O V E M B E R 28, 1 9 8 2 (P= 17.36, B_o= 1.27, L_o= 327.28)

KITT PEAK MAGNETOGRAM

Np

Bright= +
Dark = -



E

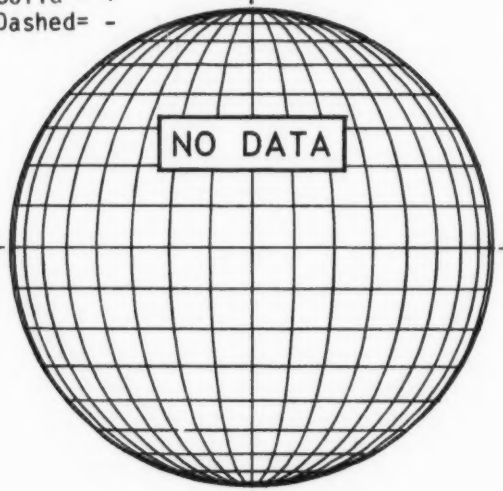
1716 UT

Sp

STANFORD MAGNETOGRAM

Np

Solid = +
Dashed= -

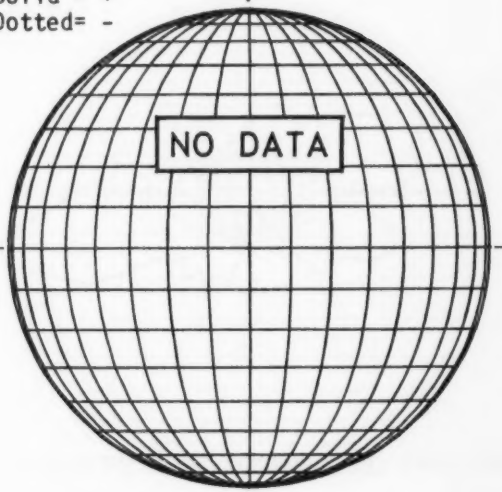


Sp

MT. WILSON MAGNETOGRAM

Np

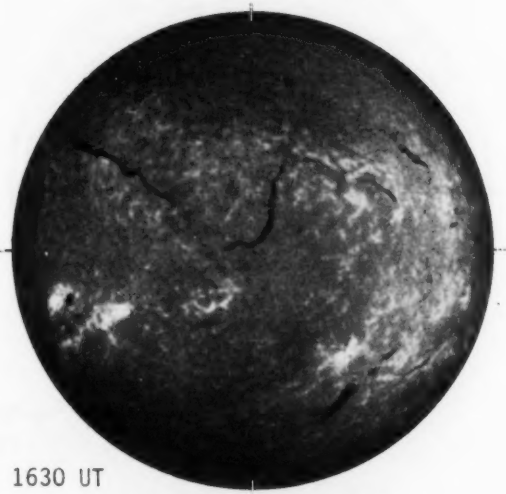
Solid = +
Dotted= -



W

Sp

BOULDER H-ALPHA

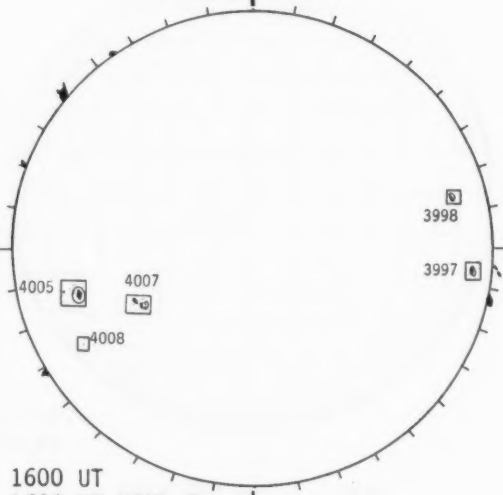


E

1630 UT

Sp

BOULDER SUNSPOTS



1600 UT
1630 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)

W

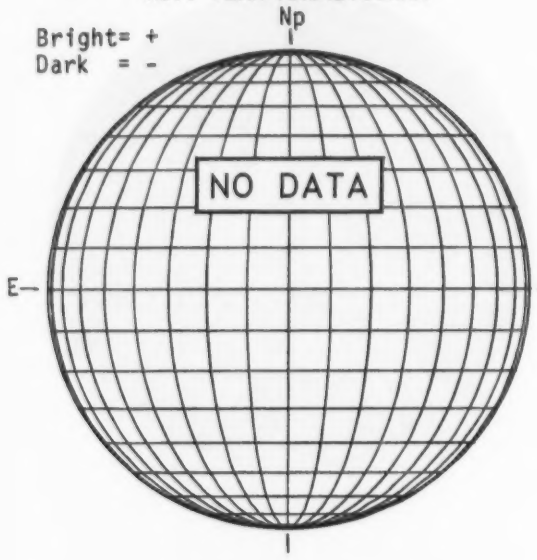
Sp

85
Nov 82

NOVEMBER 29, 1982 (P= 17.00, B_o= 1.14, L_o= 314.10)

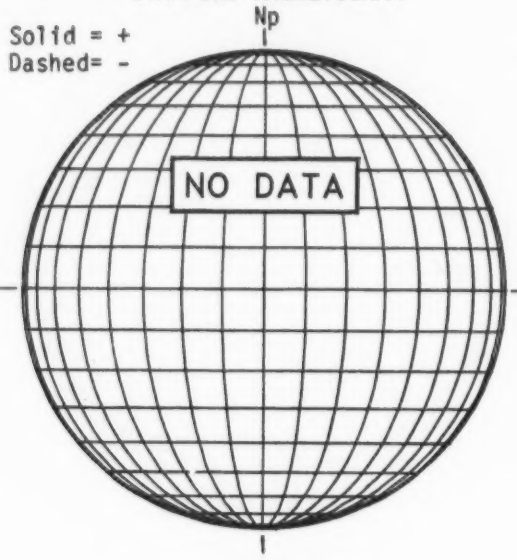
KITT PEAK MAGNETOGRAM

Bright= +
Dark = -



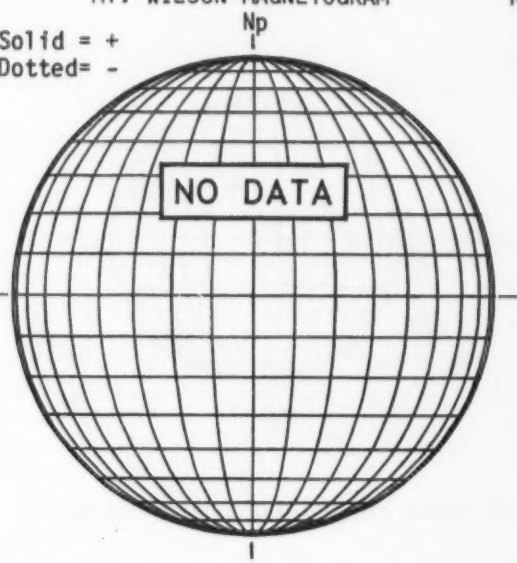
STANFORD MAGNETOGRAM

Solid = +
Dashed= -

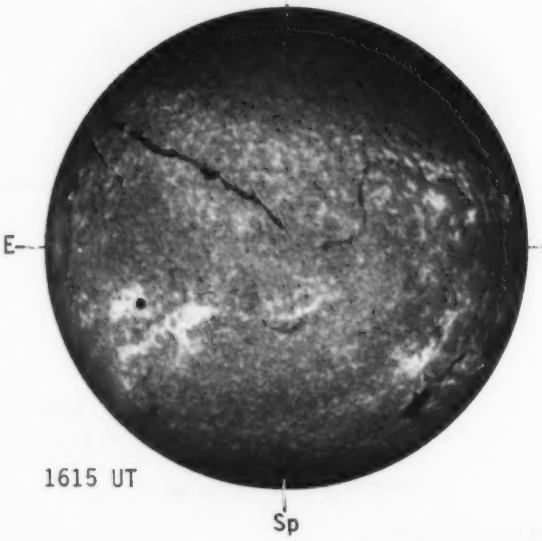


MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

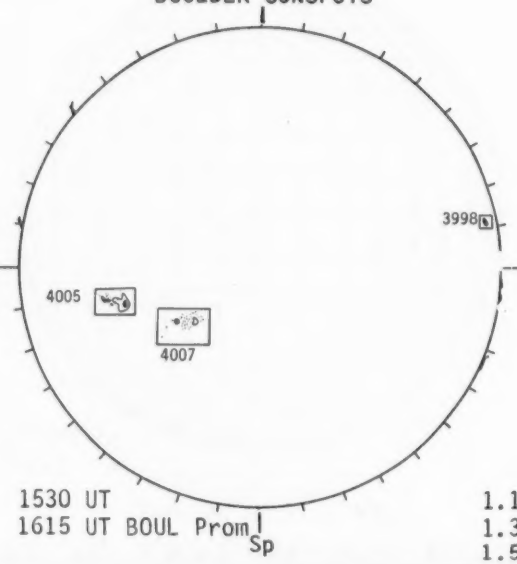


BOULDER H-ALPHA



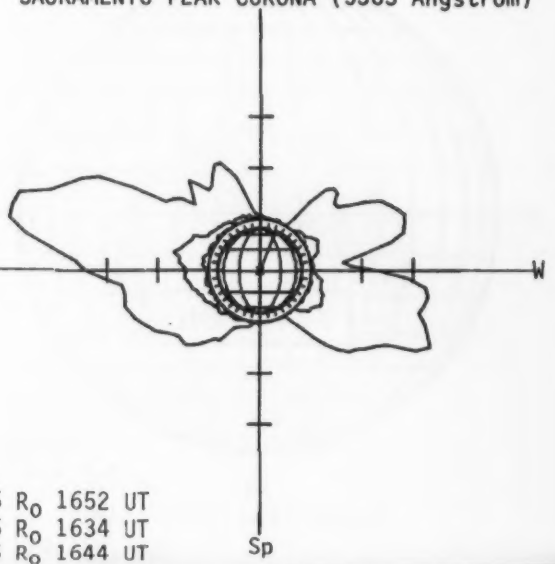
1615 UT

BOULDER SUNSPOTS



1530 UT
1615 UT BOUL Prom

SACRAMENTO PEAK CORONA (5303 Angstrom)



1.15 R_o 1652 UT
1.35 R_o 1634 UT
1.55 R_o 1644 UT

NOVEMBER 30, 1982 (P= 16.62, B_o= 1.02, L_o= 300.92)

1615 UT BOUL Prom

Sp

1.15 R_o 1652 UT
1.35 R_o 1634 UT
1.55 R_o 1644 UT

Sp

N O V E M B E R 30, 1 9 8 2 (P= 16.62, B_o= 1.02, L_o= 300.92)

KITT PEAK MAGNETOGRAM

Bright= +
Dark = -

Np

NO DATA

E

STANFORD MAGNETOGRAM

Solid = +
Dashed= -

Np

NO DATA

MT. WILSON MAGNETOGRAM

Solid = +
Dotted= -

Np

NO DATA

W

BOULDER H-ALPHA

1750 UT

Sp

BOULDER SUNSPOTS

NO DATA

1750 UT BOUL Prom

Sp

SACRAMENTO PEAK CORONA (5303 Angstrom)

NO DATA

Sp

W

87
Nov 82

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

NOVEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
3975		RAMY	11	02	1245	S08	W01	11	2.5		B	DAO	20	3	2	4
3975		HOLL	11	02	1545	S09	W02	11	2.5		B	BXO	10	3	3	3
3975	23418	MWIL	11	02	1600	S09	W01	11	2.6	2	(B)					
3975		PALE	11	02	1830	S09	W03	11	2.5		B	BXO	10	2	2	3
3975		MANI	11	02	2317	S09	W06	11	2.5			BXO	10	2	3	3
3975		LEAR	11	03	0006	S10	W07	11	2.5		B	BXO		4	3	3
3975		HOLL	11	03	1525	S10	W15	11	2.5		B	BXO	20	5	4	3
3975	23418	MWIL	11	03	1530	S10	W15	11	2.5	4	(B)					
3975		RAMY	11	03	1600	S10	W16	11	2.5		B	DAO	40	5	4	3
3975		BOUL	11	03	1755	S08	W17	11	2.5		B	CRO	30	3	4	2
3975		MANI	11	03	2340	S09	W20	11	2.5			CRO	40	5	4	3
3975		MANI	11	04	0001	S09	W20	11	2.5			CRO	40	5	4	3
3975		LEAR	11	04	0108	S10	W21	11	2.5		B	DRO	20	8	5	3
3975		HOLL	11	04	1530	S10	W28	11	2.5		B	DAO	90	14	6	3
3975	23418	MWIL	11	04	1545	S10	W28	11	2.6	4	(B)					
3975		MANI	11	04	2335	S09	W34	11	2.4			DSO	80	8	6	3
3975		LEAR	11	05	0013	S09	W33	11	2.5		B	DAO	60	8	7	3
3975		HOLL	11	05	1535	S10	W42	11	2.5		B	DAO	70	10	8	3
3975	23418	MWIL	11	05	1545	S10	W41	11	2.6	4	(B)					
3975		PALE	11	05	1812	S10	W44	11	2.4		B	DAO	50	6	8	4
3975		LEAR	11	06	0110	S10	W47	11	2.5		B	CSO	60	8	8	3
3975		MANI	11	06	0233	S09	W47	11	2.6			CSO	70	9	7	3
3975		RAMY	11	06	1313	S10	W55	11	2.4		B	CRO	140	8	10	2
3975		HOLL	11	06	1504	S11	W55	11	2.5		B	CAO	50	9	8	3
3975	23418	MWIL	11	06	1700	S10	W57	11	2.4	3	(B)					
3975		PALE	11	06	2018	S10	W57	11	2.6		B	BXO	40	4	8	3
3975		LEAR	11	07	0120	S09	W62	11	2.4		B	BXO	30	6	7	3
3975		MANI	11	07	0142	S09	W61	11	2.5			BXO	10	3	4	3
3975		RAMY	11	07	1234	S09	W68	11	2.4		B	CRO	20	7	5	2
3975		HOLL	11	07	1533	S10	W68	11	2.5		B	BXO	10	2	3	2
3975		BOUL	11	07	1534	S07	W69	11	2.5		B	BXO	10	3	4	3
3975	23418	MWIL	11	07	1600	S09	W70	11	2.4	2	B					
3975		PALE	11	07	1830	S10	W70	11	2.5		B	BXO	10	2	3	4
3975		LEAR	11	08	0020	S10	W75	11	2.4		B	BXO	10	3	5	3
3982		RAMY	11	07	1234	S10	W45	11	4.1		B	CRO	40	3	3	2
3982		HOLL	11	07	1533	S10	W46	11	4.2		B	BXO	20	3	3	2
3982		BOUL	11	07	1534	S08	W47	11	4.1		B	BXO	10	3	3	3
3982	23428	MWIL	11	07	1600	S10	W47	11	4.1	4	B					
3982		PALE	11	07	1830	S11	W49	11	4.1		B	BXO	20	3	4	4
3982		LEAR	11	08	0020	S10	W52	11	4.1		B	BXO		2	6	3
3982		RAMY	11	08	1225	S09	W61	11	3.9		B	CAO	20	2	1	4
0001		LEAR	11	08	0020	S15	W45	11	4.6		A	AXX		1		3
0001		RAMY	11	08	1225	S13	W51	11	4.7		B	BXO	20	2	2	4
3971	23411	MWIL	10	31	1630	S24	E55	11	4.9	2	(AP)					
3971		HOLL	11	01	1522	S21	E39	11	4.6		B	BXO	10	2	3	3
3971	23411	MWIL	11	01	1530	S23	E40	11	4.7	2	(AF)					
3971		HOLL	11	03	1525	S24	E14	11	4.7		B	BXO	10	3	3	3
3971	23420	MWIL	11	03	1530	S25	E15	11	4.8	3	(B)					
3971		RAMY	11	03	1600	S23	E13	11	4.7		B	DAO	50	5	4	3
3971		BOUL	11	03	1755	S20	E12	11	4.7		B	CRO	20	4	3	2
3971		MANI	11	03	2340	S24	E09	11	4.7			CRO	30	3	3	3
3971		MANI	11	04	0001	S24	E09	11	4.7			CRO	30	3	3	3
3971		LEAR	11	04	0108	S23	E09	11	4.7		B	BXO	10	3	3	3
3971		HOLL	11	04	1530	S24	E01	11	4.7		B	BXO	20	6	5	3
3971	23420	MWIL	11	04	1545	S24	E01	11	4.7	4	(B)					
3971		MANI	11	04	2335	S22	W04	11	4.7			BXO	20	6	4	3
3971		LEAR	11	05	0013	S22	W05	11	4.6		B	BXO	20	9	6	3
3971		HOLL	11	05	1535	S23	W14	11	4.6		B	BXO	10	3	3	3
3971	23420	MWIL	11	05	1545	S20	W15	11	4.5	3	(AP)					
3971		PALE	11	05	1812	S22	W16	11	4.5		B	BXO	10	2	3	4
3971		HOLL	11	06	1504	S21	W28	11	4.5		B	BXO		2	4	3
3971	23420	MWIL	11	06	1700	S20	W29	11	4.5	2	(AP)					
3971		RAMY	11	08	1225	S21	W51	11	4.6		B	CSO	40	2	2	4
3971		HOLL	11	08	2258	S21	W58	11	4.5		A	AXX		1		3
3971		MANI	11	08	2326	S22	W60	11	4.4			AXX	10	1		3
0002		LEAR	11	06	0110	S09	W13	11	5.1		A	AXX		1		3
0002		MANI	11	06	0233	S09	W14	11	5.1			AXX		1		3

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

NOVEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
0002		HOLL	11	06	1504	S09	W21	11	5.1		A	AXX		1		3
3970		LEAR	10	31	0051	N21	E88	11	6.8		A	HSX	30	1	1	3
3970		RAMY	10	31	1339	N22	E80	11	6.7		A	HKX	140	3	3	3
3970		HOLL	10	31	1505	N21	E79	11	6.7		A	HSX	60	1	2	3
3970	23412	MWIL	10	31	1630	N22	E79	11	6.8	4	(AP)					
3970		MANI	10	31	2303	N20	E77	11	6.9			HSX	170	1	2	3
3970		RAMY	11	01	1237	N23	E75	11	7.3		B	EKO	140	6	12	3
3970		HOLL	11	01	1522	N22	E70	11	7.0		B	FAO	190	10	18	3
3970	23412	MWIL	11	01	1530	N21	E66	11	6.7	4	(BP)					
3970		BOUL	11	01	1745	N22	E67	11	6.9		B	CSO	100	2	5	2
3970		PALE	11	01	2045	N21	E63	11	6.7		A	HSX	50	1	2	1
3970		MANI	11	01	2306	N22	E62	11	6.7			CAO	180	3	3	3
3970		LEAR	11	02	0030	N22	E61	11	6.7		B	CAO	140	4	3	3
3970		RAMY	11	02	1245	N22	E54	11	6.7		B	CKO	170	3	3	4
3970		HOLL	11	02	1545	N22	E52	11	6.7		A	HSX	70	2	2	3
3970	23412	MWIL	11	02	1600	N21	E51	11	6.6	4	(AP)					
3970		PALE	11	02	1830	N22	E51	11	6.7		A	HSX	100	3	2	3
3970		MANI	11	02	2317	N22	E49	11	6.7			HSX	150	2	2	3
3970		LEAR	11	03	0006	N22	E47	11	6.6		B	CSO	160	3	3	3
3970		HOLL	11	03	1525	N22	E39	11	6.6		A	HSX	160	2	2	3
3970	23412	MWIL	11	03	1530	N21	E39	11	6.6	5	(AP)					
3970		RAMY	11	03	1600	N22	E39	11	6.7		B	CKO	120	3	4	3
3970		BOUL	11	03	1755	N21	E35	11	6.4		A	HSX	80	2	2	2
3970		MANI	11	03	2340	N22	E35	11	6.7			HSX	120	2	2	3
3970		MANI	11	04	0001	N22	E35	11	6.7			HSX	120	2	2	3
3970		LEAR	11	04	0108	N21	E35	11	6.7		A	HSX	120	3	2	3
3970		HOLL	11	04	1530	N21	E28	11	6.8		B	CSO	130	4	6	3
3970	23412	MWIL	11	04	1545	N21	E27	11	6.7	5	(AP)					
3970		MANI	11	04	2335	N22	E21	11	6.6			CSO	120	4	4	3
3970		LEAR	11	05	0013	N21	E21	11	6.6		B	CSO	110	2	4	3
3970		HOLL	11	05	1535	N21	E15	11	6.8		B	CSO	120	2	4	3
3970	23412	MWIL	11	05	1545	N21	E14	11	6.7	5	(AP)					
3970		PALE	11	05	1812	N21	E13	11	6.8		A	HSX	80	1	2	4
3970		LEAR	11	06	0110	N21	E08	11	6.7		A	HSX	80	1	2	3
3970		MANI	11	06	0233	N22	E08	11	6.7			HSX	90	1	2	3
3970		RAMY	11	06	1313	N22	E02	11	6.7		B	CHO	120	4	3	2
3970		HOLL	11	06	1504	N21	E01	11	6.7		A	HSX	10	1	2	3
3970	23412	MWIL	11	06	1700	N21	W01	11	6.6	5	(AP)					
3970		PALE	11	06	2018	N22	W00	11	6.8		B	CSO	50	3	4	3
3970		LEAR	11	07	0120	N21	W05	11	6.7		A	HSX	80	1	2	3
3970		MANI	11	07	0142	N22	W05	11	6.7			HSX	60	1	2	3
3970		RAMY	11	07	1234	N22	W11	11	6.7		A	HSX	60	1	2	2
3970		HOLL	11	07	1533	N22	W12	11	6.7		A	HSX	80	1	2	2
3970		BOUL	11	07	1534	N21	W12	11	6.7		A	HSX	60	1	2	3
3970	23412	MWIL	11	07	1600	N22	W12	11	6.7	5	AP					
3970		PALE	11	07	1830	N21	W12	11	6.9		A	HSX	60	1	2	4
3970		LEAR	11	08	0020	N21	W18	11	6.6		A	HSX	80	1	2	3
3970		RAMY	11	08	1225	N22	W24	11	6.7		B	CHO	100	5	3	4
3970		PALE	11	08	1920	N21	W27	11	6.7		A	HSX	50	1	2	2
3970		HOLL	11	08	2258	N21	W29	11	6.7		A	HSX	50	1	1	3
3970		MANI	11	08	2326	N22	W30	11	6.7			HSX	70	1	2	3
3970		PALE	11	09	1914	N22	W40	11	6.7		A	HSX	50	2	2	3
3970		MANI	11	10	0039	N22	W43	11	6.7		A	HSX	70	1	2	2
3970		LEAR	11	10	0115	N21	W43	11	6.8		A	HSX	80	1	2	3
3970		RAMY	11	10	1430	N22	W53	11	6.5		A	HAX	30	1	2	3
3970		BOUL	11	10	1720	N22	W53	11	6.6		A	HSX	50	1	1	2
3970		PALE	11	10	1823	N22	W53	11	6.7		A	HAX	50	2	2	3
3970		MANI	11	11	0001	N21	W56	11	6.7		A	HSX	70	1	2	3
3970		LEAR	11	11	0016	N21	W57	11	6.6		A	HSX	20	1	1	3
3970		RAMY	11	11	1455	N22	W67	11	6.5		A	AXX	30	1	1	2
3970		PALE	11	11	1750	N22	W67	11	6.6		A	AXX	10	1	1	2
3970	23412	MWIL	11	11	1800	N21	W66	11	6.7	3	(AP)					
3970		MANI	11	11	2318	N21	W69	11	6.7			HRX	50	1	1	3
3970		LEAR	11	12	0010	N21	W69	11	6.7		A	HRX	10	1	1	3
3970		RAMY	11	12	1507	N22	W77	11	6.7		A	AXX	20	1	2	1
3970	23412	MWIL	11	12	1600	N21	W78	11	6.7	2	(AP)					
3983	23425	MWIL	11	06	1700	S12	E06	11	7.2	2	(B)					
3983		PALE	11	06	2018	S12	E04	11	7.1		A	AXX		1		3
3983		LEAR	11	07	0120	S12	E02	11	7.2		B	BXO	10	3	3	3

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
3983		RAMY	11	07	1234	S12	W04	11	7.2		B	BXO	30	5	3	2
3983		HOLL	11	07	1533	S11	W05	11	7.3		B	BXO	10	3	4	2
3983		BOUL	11	07	1534	S10	W07	11	7.1		B	BXO	10	5	6	3
3983	23425	MWIL	11	07	1600	S11	W06	11	7.2	4	B					
3983		PALE	11	07	1830	S11	W08	11	7.2		B	CSO	30	8	6	4
3983		LEAR	11	08	0020	S12	W12	11	7.1		B	CRO	40	11	5	3
3983		RAMY	11	08	1225	S12	W19	11	7.1		B	DAO	40	7	6	4
3983		PALE	11	08	1920	S11	W23	11	7.1		B	CSO	20	3	6	2
3983		HOLL	11	08	2258	S11	W25	11	7.1		B	DSO	60	6	6	3
3983		MANI	11	08	2326	S11	W26	11	7.0			DRO	40	6	6	3
3983		PALE	11	09	1914	S11	W37	11	7.0		B	CAO	20	4	5	3
3983		MANI	11	10	0039	S11	W40	11	7.0		B	CRO	40	4	5	2
3983		LEAR	11	10	0115	S12	W40	11	7.0		B	CRO	40	5	4	3
3983		RAMY	11	10	1430	S12	W49	11	6.9		A	AXX	20	2	1	3
3983		BOUL	11	10	1720	S10	W51	11	6.9		A	HRX	30	2	1	2
3983		PALE	11	10	1823	S12	W52	11	6.8		A	AXX	10	2	1	3
3983		MANI	11	11	0001	S11	W55	11	6.9		A	AXX	10	1	1	3
3983		LEAR	11	11	0016	S11	W55	11	6.9		A	AXX		1		3
3983		RAMY	11	11	1455	S13	W65	11	6.7		A	AXX	20	2	1	2
3983	23425	MWIL	11	11	1800	S12	W65	11	6.8	3	(AP)					
3983		MANI	11	11	2318	S11	W68	11	6.9			AXX	10	1		3
3983		LEAR	11	12	0010	S12	W68	11	6.9		A	AXX		1		3
3972		RAMY	11	01	1237	N11	E80	11	7.5		B	DKO	60	3	5	3
3972		HOLL	11	01	1522	N10	E75	11	7.3		B	CSO	80	2	3	3
3972	23415	MWIL	11	01	1530	N09	E76	11	7.4	3	(AP)					
3972		BOUL	11	01	1745	N11	E74	11	7.3		B	CSO	80	4	4	2
3972		PALE	11	01	2045	N10	E73	11	7.4		B	CSO	50	2	3	1
3972		MANI	11	01	2306	N10	E71	11	7.3			DSO	120	3	4	3
3972		LEAR	11	02	0030	N10	E71	11	7.4		B	DSO	70	4	4	3
3972		RAMY	11	02	1245	N10	E63	11	7.3		B	DAO	90	7	3	4
3972		HOLL	11	02	1545	N11	E61	11	7.2		B	CSO	10	3	3	3
3972	23415	MWIL	11	02	1600	N09	E61	11	7.2	3	(AP)					
3972		PALE	11	02	1830	N10	E60	11	7.3		B	CRO	10	4	4	3
3972		MANI	11	02	2317	N10	E58	11	7.3			CRO	60	3	4	3
3972		LEAR	11	03	0006	N10	E57	11	7.3		B	BXO	10	4	3	3
3972		HOLL	11	03	1525	N09	E49	11	7.3		B	BXO		2	3	3
3972	23415	MWIL	11	03	1530	N08	E50	11	7.4	3	(AP)					
3972		RAMY	11	03	1600	N11	E49	11	7.4		B	BXO	10	4	5	3
3972		LEAR	11	04	0108	N09	E45	11	7.4		A	AXX	10	2	2	3
3972		HOLL	11	04	1530	N10	E38	11	7.5		B	BXO		2	3	3
3972	23415	MWIL	11	04	1545	N08	E37	11	7.4	3	(AP)					
3972		MANI	11	04	2335	N10	E32	11	7.4			BXO	10	2	2	3
3972		HOLL	11	05	1535	N10	E25	11	7.5		B	BXO		2	3	3
3972	23422	MWIL	11	05	1545	N12	E30	11	7.9	3	(AP)					
3972		RAMY	11	07	1234	N11	E00	11	7.5		B	BXO	30	3	2	2
3972		LEAR	11	08	0020	N12	W04	11	7.7		B	BXO	10	4	6	3
3972		RAMY	11	08	1225	N12	W13	11	7.5		B	CAO	20	5	4	4
3973	23416	MWIL	11	01	1530	N23	E79	11	7.7	3	(B)					
3973		BOUL	11	01	1745	N24	E78	11	7.8		B	DSO	130	6	9	2
3973		PALE	11	01	2045	N23	E75	11	7.6		B	CSO	80	5	8	1
3973		MANI	11	01	2306	N24	E75	11	7.8			DSO	170	4	7	3
3973		LEAR	11	02	0030	N24	E74	11	7.7		B	DSO	50	4	7	3
3973		RAMY	11	02	1245	N24	E66	11	7.6		B	DAO	130	9	8	4
3973		HOLL	11	02	1545	N24	E65	11	7.7		B	CSO	20	5	8	3
3973	23416	MWIL	11	02	1600	N23	E64	11	7.6	3	(B)					
3973		PALE	11	02	1830	N23	E64	11	7.7		B	CSO	30	5	8	3
3973		MANI	11	02	2317	N24	E62	11	7.8			DRO	120	4	8	3
3973		LEAR	11	03	0006	N24	E60	11	7.6		B	DSO	30	7	6	3
3973		HOLL	11	03	1525	N23	E52	11	7.7		B	DAO	50	5	8	3
3973	23416	MWIL	11	03	1530	N23	E52	11	7.7	4	(B)					
3973		RAMY	11	03	1600	N25	E53	11	7.8		B	DAO	90	6	8	3
3973		BOUL	11	03	1755	N22	E50	11	7.6		B	CSO	60	7	7	2
3973		MANI	11	03	2340	N24	E47	11	7.6			CSO	90	5	7	3
3973		MANI	11	04	0001	N24	E47	11	7.6			CSO	90	5	7	3
3973		LEAR	11	04	0108	N23	E47	11	7.7		B	CAO	40	7	7	3
3973		HOLL	11	04	1530	N23	E39	11	7.7		B	CAO	30	5	7	3
3973	23416	MWIL	11	04	1545	N23	E38	11	7.6	4	(BP)					
3973		MANI	11	04	2335	N23	E36	11	7.8			CRO	60	4	8	3
3973		LEAR	11	05	0013	N22	E33	11	7.5		B	CSO	20	2	4	3

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	CMP Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
3973		HOLL	11	05	1535	N22	E24	11	7.5		B	CRO	20	2	5	3
3973	23416	MWIL	11	05	1545	N22	E29	11	7.9	4	(B)					
3973		PALE	11	05	1812	N23	E23	11	7.5		B	CRO	20	2	4	4
3973		LEAR	11	06	0110	N22	E18	11	7.4		A	HRX	20	1	1	3
3973		MANI	11	06	0233	N23	E18	11	7.5			HRX	20	1	1	3
3973		RAMY	11	06	1313	N22	E10	11	7.3		B	BXO	30	3	2	2
3973		HOLL	11	06	1504	N23	E10	11	7.4		B	BXO	10	2	3	3
3973	23416	MWIL	11	06	1700	N23	E13	11	7.7	3	(B)					
3973		PALE	11	06	2018	N22	E07	11	7.4		A	AXX		1		3
3973		LEAR	11	07	0120	N22	E04	11	7.4		A	AXX		1		3
3973		MANI	11	07	0142	N23	E05	11	7.5			AXX	10	1		3
3973		RAMY	11	07	1234	N22	W02	11	7.4		A	AXX	10	2	2	2
3973		HOLL	11	07	1533	N22	W04	11	7.3		A	AXX		1	1	2
3973		BOUL	11	07	1534	N20	W04	11	7.3		A	AXX		1		3
3973	23416	MWIL	11	07	1600	N22	W01	11	7.6	3	B					
3973		PALE	11	07	1830	N22	W06	11	7.3		A	AXX		2		4
3973		LEAR	11	08	0020	N23	W11	11	7.2		B	BXO		2	4	3
3973		HOLL	11	08	2258	N22	W13	11	8.0		A	AXX	10	1		3
3973	23416	MWIL	11	11	1800	N22	W50	11	7.9	3	(B)					
3981		HOLL	11	05	1535	N23	E34	11	8.3		A	AXX		1		3
3981		PALE	11	05	1812	N23	E33	11	8.3		A	AXX	10	1	1	4
3981		LEAR	11	06	0110	N22	E28	11	8.2		B	BXO	10	2	3	3
3981		MANI	11	06	0233	N22	E29	11	8.3			BXO	10	2	2	3
3981		RAMY	11	06	1313	N24	E21	11	8.2		A	AXX	20	1	1	2
3981		HOLL	11	06	1504	N24	E19	11	8.1		B	BXO	10	3	4	3
3981		PALE	11	06	2018	N24	E17	11	8.2		A	AXX		1		3
3981		LEAR	11	07	0120	N24	E14	11	8.1		B	BXO	10	3	3	3
3981		MANI	11	07	0142	N22	E16	11	8.3			BXO	10	3	2	3
3981		RAMY	11	07	1234	N21	E05	11	7.9		B	BXO	30	4	3	2
3981		LEAR	11	08	0020	N22	W01	11	7.9		A	AXX		2	1	3
3981		RAMY	11	08	1225	N24	W08	11	7.9		B	BXO	10	6	3	4
3981		PALE	11	08	1920	N24	W11	11	8.0		A	AXX	10	1	1	2
3981		HOLL	11	08	2258	N22	W13	11	8.0		A	AXX	10	1		3
3981		MANI	11	08	2326	N24	W14	11	7.9			AXX	10	1	1	3
3981		MANI	11	11	0001	N24	W40	11	7.9		A	AXX	10	2	1	3
3981		LEAR	11	11	0016	N23	W39	11	8.0		A	AXX	10	2	1	3
3981		RAMY	11	11	1455	N23	W50	11	7.8		B	BXO	20	2	4	2
3974	23417	MWIL	11	01	1530	N05	E85	11	8.0	2	(AP)					
3974		MANI	11	01	2306	N06	E78	11	7.8			HSX	90	2	1	3
3974		LEAR	11	02	0030	N05	E78	11	7.9		A	HAX	50	3	1	3
3974		RAMY	11	02	1245	N05	E71	11	7.8		B	CAO	60	7	3	4
3974		HOLL	11	02	1545	N06	E72	11	8.0		B	BXO		4	3	3
3974	23417	MWIL	11	02	1600	N04	E70	11	7.9	3	(AP)					
3974		PALE	11	02	1830	N06	E74	11	8.3		B	BXO	20	7	9	3
3974		MANI	11	02	2317	N06	E71	11	8.3			CRO	90	6	8	3
3974		LEAR	11	03	0006	N05	E67	11	8.0		B	BXO	20	8	6	3
3974		HOLL	11	03	1525	N05	E58	11	8.0		B	CRO	20	8	7	3
3974	23417	MWIL	11	03	1530	N03	E58	11	8.0	3	(B)					
3974		RAMY	11	03	1600	N06	E59	11	8.1		B	DAO	80	7	7	3
3974		BOUL	11	03	1755	N05	E56	11	7.9		B	BXO	10	5	8	2
3974		MANI	11	03	2340	N05	E54	11	8.0			CRO	30	8	9	3
3974		MANI	11	04	0001	N05	E54	11	8.0			CRO	30	8	9	3
3974		LEAR	11	04	0108	N05	E53	11	8.0		B	BXO	10	5	8	3
3974		HOLL	11	04	1530	N05	E46	11	8.1		BG	BXO	20	6	9	3
3974	23417	MWIL	11	04	1545	N04	E45	11	8.0	4	(B)					
3974		MANI	11	04	2335	N05	E41	11	8.1			BXO	30	7	9	3
3974		LEAR	11	05	0013	N05	E38	11	7.9		B	CRO	10	3	6	3
3974		HOLL	11	05	1535	N05	E30	11	7.9		B	BXO	10	3	6	3
3974	23417	MWIL	11	05	1545	N05	E30	11	7.9	3	(AP)					
3974		PALE	11	05	1812	N05	E30	11	8.0		B	BXO	20	3	5	4
3974		LEAR	11	06	0110	N05	E27	11	8.1		A	AXX	10	3	2	3
3974		MANI	11	06	0233	N05	E27	11	8.1			AXX	10	2	2	3
3974		RAMY	11	06	1313	N05	E21	11	8.1		B	BXO	30	3	4	2
3974	23417	MWIL	11	07	1600	N06	E05	11	8.0	2	B					
3974		MANI	11	08	2326	N11	W13	11	8.0			BXO	20	7	5	3
3974		BOUL	11	10	1720	N06	W35	11	8.1		A	AXX		1		2
3974		PALE	11	10	1823	N06	W34	11	8.2		B	BXO	10	2	5	3
3974		LEAR	11	11	0016	N06	W40	11	8.0		A	AXX		1		3
3974	23435	MWIL	11	12	1600	N04	W62	11	8.0	2	(AP)					

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3977		LEAR	11	05	0013	S09 E43	11	8.2		A	AXX		1		3
3977		HOLL	11	05	1535	S09 E36	11	8.4		B	BXO	10	3	3	3
3977	23423	MWIL	11	05	1545	S09 E35	11	8.3	3	(B)					
3977		PALE	11	05	1812	S09 E33	11	8.2		B	BXO	20	4	4	4
3977		LEAR	11	06	0110	S09 E30	11	8.3		B	BXO	10	3	3	3
3977		MANI	11	06	0233	S09 E30	11	8.4			BXO	10	3	2	3
3977	23423	MWIL	11	06	1700	S10 E20	11	8.2	3	(B)					
3977		PALE	11	06	2018	S08 E18	11	8.2		B	BXO	10	2	3	3
3977		LEAR	11	07	0120	S09 E15	11	8.2		B	BXO	20	2	3	3
3977		MANI	11	07	0142	S09 E16	11	8.3			BXO	40	3	3	3
3977		RAMY	11	07	1234	S08 E09	11	8.2		B	CSO	30	2	3	2
3977		HOLL	11	07	1533	S08 E08	11	8.2		B	BXO	10	2	3	2
3977		BOUL	11	07	1534	S07 E06	11	8.1		B	BXO	10	3	3	3
3977	23423	MWIL	11	07	1600	S08 E07	11	8.2	4	B					
3977		PALE	11	07	1830	S08 E06	11	8.2		B	BXO	20	4	4	4
3977		LEAR	11	08	0020	S08 E02	11	8.2		A	AXX		1		3
3977		RAMY	11	08	1225	S08 W05	11	8.1		A	HAX	10	1	2	4
3977		PALE	11	08	1920	S08 W08	11	8.2		A	HRX	10	1	1	2
3977		HOLL	11	08	2258	S08 W11	11	8.1		A	AXX	10	1		3
3977		MANI	11	08	2326	S08 W12	11	8.1			HRX	20	1	1	3
3977		MANI	11	10	0039	S08 W25	11	8.2		A	AXX		1		2
3988		MANI	11	08	2326	N10 W03	11	8.8			AXX		2		3
3988		HOLL	11	09	2006	N08 W08	11	9.2		B	DAO	30	6	4	2
3988		LEAR	11	10	0115	N08 W11	11	9.2		B	CRO	20	5	4	3
3988		RAMY	11	10	1430	N09 W17	11	9.3		B	BXO	10	2	5	3
3988		BOUL	11	10	1720	N10 W22	11	9.1		B	BXO	10	2	6	2
3988		MANI	11	10	2350	N09 W26	11	9.0			BXO	10	2	3	3
3988		MANI	11	11	0001	N09 W26	11	9.0		B	BXO	10	2	3	3
3988		LEAR	11	11	0016	N10 W26	11	9.1		B	BXO	10	3	5	3
3988		RAMY	11	11	1455	N08 W32	11	9.2		A	AXX	10	1	1	2
3988	23430	MWIL	11	11	1800	N08 W32	11	9.3	3	(AP)					
3988		MANI	11	11	2318	N08 W36	11	9.3			AXX	10	1		3
3988		LEAR	11	12	0010	N08 W36	11	9.3		A	AXX		1		3
3979		LEAR	11	06	0110	N11 E49	11	9.7		B	CSO	40	4	3	3
3979		MANI	11	06	0233	N11 E49	11	9.8			CSO	30	3	3	3
3979		RAMY	11	06	1313	N12 E43	11	9.8		B	DAO	170	15	6	2
3979		HOLL	11	06	1504	N11 E43	11	9.9		BG	DAI	130	14	7	3
3979	23426	MWIL	11	06	1700	N11 E40	11	9.7	4	(B)					
3979		PALE	11	06	2018	N11 E40	11	9.9		BG	DAI	120	10	6	3
3979		LEAR	11	07	0120	N11 E37	11	9.8		BG	DAO	130	13	6	3
3979		MANI	11	07	0142	N11 E37	11	9.9			DSO	140	10	6	3
3979		RAMY	11	07	1234	N11 E30	11	9.8		BG	DAI	210	13	8	2
3979		HOLL	11	07	1533	N12 E29	11	9.8		BG	DHO	220	9	6	2
3979		BOUL	11	07	1534	N14 E25	11	9.5		BG	DAI	190	20	8	3
3979	23426	MWIL	11	07	1600	N11 E28	11	9.8	5	B					
3979		PALE	11	07	1830	N11 E26	11	9.7		BG	DAI	250	17	7	4
3979		LEAR	11	08	0020	N11 E24	11	9.8		BG	DSI	160	20	6	3
3979		RAMY	11	08	1225	N13 E16	11	9.7		BG	DHO	210	21	6	4
3979		PALE	11	08	1920	N11 E12	11	9.7		BG	DAO	190	9	7	2
3979		HOLL	11	08	2258	N11 E11	11	9.8		B	DKO	120	12	6	3
3979		MANI	11	08	2326	N11 E10	11	9.7			DAI	240	15	7	3
3979		PALE	11	09	1914	N10 W02	11	9.7		B	EAO	170	16	11	3
3979		HOLL	11	09	2006	N10 W02	11	9.7		B	DAO	150	9	5	2
3979		MANI	11	10	0039	N09 W06	11	9.6		B	EAO	170	11	11	2
3979		LEAR	11	10	0115	N10 W03	11	9.8		B	DAO	140	5	5	3
3979		RAMY	11	10	1430	N08 W10	11	9.9		BD	CKO	80	9	4	3
3979		BOUL	11	10	1720	N11 W14	11	9.7		B	DHI	150	9	5	2
3979		PALE	11	10	1823	N10 W11	11	9.9		B	CKO	180	15	12	3
3979		MANI	11	11	0001	N10 W15	11	9.9		B	CAO	140	12	10	3
3979		LEAR	11	11	0016	N10 W17	11	9.7		B	CAO	150	10	5	3
3979		RAMY	11	11	1455	N11 W26	11	9.7		B	CAO	70	6	4	2
3979		PALE	11	11	1750	N11 W29	11	9.6		B	CAO	70	6	7	2
3979	23426	MWIL	11	11	1800	N11 W27	11	9.7	5	(B)					
3979		MANI	11	11	2318	N11 W31	11	9.6			CAO	120	6	4	3
3979		LEAR	11	12	0010	N11 W31	11	9.7		A	HAX	100	4	2	3
3979		RAMY	11	12	1507	N12 W38	11	9.8		A	HKX	100	3	3	1
3979	23426	MWIL	11	12	1600	N11 W39	11	9.7	5	(AP)					
3979		HOLL	11	12	1628	N12 W40	11	9.7		A	HSX	100	2	2	3
3979		BOUL	11	12	1700	N12 W38	11	9.8		A	HSX	60	1	1	1

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
3979		PALE	11	12	1802	N12 W41	11	9.7		A	HAX	70	1	2	3
3979		LEAR	11	13	0032	N11 W44	11	9.7		A	HAX	120	2	2	3
3979		RAMY	11	13	1445	N13 W52	11	9.7		A	HAX	90	2	3	3
3979		HOLL	11	13	1716	N11 W54	11	9.7		A	HAX	80	2	2	3
3979		PALE	11	13	1900	N11 W55	11	9.7		A	HAX	70	1	2	3
3979		BOUL	11	13	1905	N12 W55	11	9.6		A	HSX	80	3	2	2
3979	23426	MWIL	11	13	1930	N11 W54	11	9.7	5	AP					
3979		LEAR	11	14	0038	N11 W57	11	9.7		A	HAX	100	2	2	2
3979		RAMY	11	14	1240	N12 W64	11	9.7		A	HAX	90	3	2	4
3979	23426	MWIL	11	14	1600	N11 W65	11	9.8	4	(AP)					
3979		PALE	11	14	1920	N11 W68	11	9.7		A	HSX	60	1	2	3
3979		HOLL	11	14	2020	N10 W68	11	9.7		A	HSX	50	1	1	3
3979		MANI	11	14	2317	N11 W70	11	9.7			HSX	90	1	2	3
3979		LEAR	11	15	0011	N11 W70	11	9.7		B	CSO	90	2	3	3
3979		RAMY	11	15	1325	N12 W78	11	9.7		B	CSO	80	3	5	3
3979	23426	MWIL	11	15	1530	N11 W79	11	9.7	3	(AP)					
3979		HOLL	11	15	1533	N10 W79	11	9.7		B	DSO	80	2	3	3
3979		BOUL	11	15	1808	N12 W80	11	9.7		A	HSX	50	1	1	1
3979		PALE	11	15	2013	N12 W82	11	9.7		B	CSO	50	2	4	2
3979		MANI	11	15	2313	N11 W83	11	9.7			HRX	170	1	2	3
3979		MANI	11	16	0001	N11 W83	11	9.8		A	HRX	170	1	2	3
3979		LEAR	11	16	0017	N11 W84	11	9.7		B	CSO	30	2	7	3
3976	23421	MWIL	11	03	1530	N15 E80	11	9.7	2	(B)					
3976		HOLL	11	04	1530	N13 E77	11	10.5		B	BXO	20	4	3	3
3976	23421	MWIL	11	04	1545	N13 E75	11	10.3	4	(AP)					
3976		MANI	11	04	2335	N13 E72	11	10.4			CSO	110	5	4	3
3976		LEAR	11	05	0013	N12 E71	11	10.4		B	CSO	30	4	4	3
3976		HOLL	11	05	1535	N13 E65	11	10.6		B	BXO	30	7	8	3
3976	23421	MWIL	11	05	1545	N13 E63	11	10.4	4	(B)					
3976		PALE	11	05	1812	N12 E63	11	10.5		B	CRO	50	6	7	4
3976		LEAR	11	06	0110	N12 E59	11	10.5		B	DSO	60	8	7	3
3976		MANI	11	06	0233	N12 E59	11	10.6			DSO	80	7	5	3
3976		RAMY	11	06	1313	N13 E54	11	10.6		B	DAO	250	13	8	2
3976		HOLL	11	06	1504	N13 E52	11	10.6		B	DAO	110	11	8	3
3976	23421	MWIL	11	06	1700	N12 E50	11	10.5	4	(BP)					
3976		PALE	11	06	2018	N13 E50	11	10.6		B	DAO	80	5	7	3
3976		LEAR	11	07	0120	N12 E47	11	10.6		B	CSO	60	6	6	3
3976		MANI	11	07	0142	N12 E47	11	10.6			DRO	70	6	6	3
3976		RAMY	11	07	1234	N12 E39	11	10.5		B	DAO	100	9	8	2
3976		HOLL	11	07	1533	N13 E40	11	10.7		B	CSO	50	5	6	2
3976	23421	MWIL	11	07	1600	N13 E38	11	10.5	5	BP					
3976		PALE	11	07	1830	N13 E38	11	10.6		B	DSO	50	8	8	4
3976		LEAR	11	08	0020	N12 E34	11	10.6		B	CSO	30	14	7	3
3976		RAMY	11	08	1225	N14 E26	11	10.5		B	CAO	50	8	5	4
3976		PALE	11	08	1920	N13 E23	11	10.5		B	CSO	20	3	4	2
3976		HOLL	11	08	2258	N13 E19	11	10.4		B	CAO	30	4	3	3
3976		MANI	11	08	2326	N13 E21	11	10.6			CSO	50	8	7	3
3976		PALE	11	09	1914	N12 E11	11	10.6		B	CSO	30	4	6	3
3976		HOLL	11	09	2006	N12 E08	11	10.4		B	CAO	20	5	6	2
3976		MANI	11	10	0039	N13 E07	11	10.6		B	CSO	40	6	6	2
3976		LEAR	11	10	0115	N12 E06	11	10.5		B	BXO	30	8	7	3
3976		RAMY	11	10	1430	N12 E01	11	10.7		B	BXO	10	3	7	3
3976		BOUL	11	10	1720	N13 W04	11	10.4		B	BXO	10	4	6	2
3976		PALE	11	10	1823	N12 E02	11	10.9		B	BXO	20	4	4	3
3976		MANI	11	11	0001	N12 W06	11	10.5		B	BXO	20	7	4	3
3976		LEAR	11	11	0016	N12 W06	11	10.6		B	BXO	10	7	9	3
3976		RAMY	11	11	1455	N13 W17	11	10.3		A	AXX	10	1	1	2
3976		PALE	11	11	1750	N12 W11	11	10.9		A	AXX		1		2
3976	23421	MWIL	11	11	1800	N12 W16	11	10.5	3	(B)					
3976		BOUL	11	13	1905	N10 W37	11	11.0		A	AXX	10	1		2
3978		HOLL	11	05	1535	N27 E69	11	11.0		B	BXO	10	3	3	3
3978	23424	MWIL	11	05	1545	N26 E70	11	11.1	3	(BP)					
3978		PALE	11	05	1812	N26 E70	11	11.2		B	BXO	20	3	3	4
3978		LEAR	11	06	0110	N26 E66	11	11.2		A	AXX	10	3	2	3
3978		MANI	11	06	0233	N26 E65	11	11.2			AXX	10	2	2	3
3978		RAMY	11	06	1313	N29 E59	11	11.2		B	BXO	20	2	2	2
3978		HOLL	11	06	1504	N27 E57	11	11.1		B	BXO	10	2	3	3
3978	23424	MWIL	11	06	1700	N27 E53	11	10.8	3	(B)					
3978		LEAR	11	07	0120	N26 E52	11	11.1		B	BXO	20	4	4	3

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
3978		MANI	11	07	0142	N26	E52	11	11.1			BXO	20	4	4	3
3978		RAMY	11	07	1234	N25	E45	11	11.0		A	AXX	20	1	1	2
3978		HOLL	11	07	1533	N26	E46	11	11.2		B	BXO	10	2	4	2
3978		BOUL	11	07	1534	N27	E43	11	11.0		B	BXO	10	2	2	3
3978	23424	MWIL	11	07	1600	N26	E44	11	11.1	3	B					
3978		PALE	11	07	1830	N27	E42	11	11.0		B	BXO	20	2	3	4
3978		LEAR	11	08	0020	N26	E39	11	11.0		B	BXO	10	4	5	3
3978		RAMY	11	06	1225	N26	E31	11	10.9		B	BXO	20	3	2	4
3989		PALE	11	09	1914	S15	E15	11	10.9		A	AXX	10	1	1	3
3989		HOLL	11	09	2006	S15	E15	11	11.0		A	AXX		1		2
3989		MANI	11	10	0039	S15	E11	11	10.9		A	AXX		1		2
3989		LEAR	11	10	0115	S16	E12	11	11.0		A	AXX		1		3
0003		MANI	12	06	0001	S10	E70	11	11.3			AXX	10	3	1	3
3992		LEAR	11	13	0032	S28	W02	11	12.9		A	AXX	10	4	2	3
3992		HOLL	11	13	1716	S28	W10	11	12.9		A	AXX		1		3
3992		PALE	11	13	1900	S29	W12	11	12.9		A	AXX		1		3
3992		BOUL	11	13	1905	S26	W11	11	12.9		A	AXX	10	1		2
3992	23437	MWIL	11	13	1930	S29	W12	11	12.9	2	AP					
3992		LEAR	11	14	0038	S28	W14	11	12.9		A	AXX		1		2
3992		RAMY	11	14	1240	S28	W22	11	12.8		B	BXO	10	3	4	4
3992	23437	MWIL	11	14	1600	S29	W23	11	12.9	3	(B)					
3992		PALE	11	14	1920	S29	W27	11	12.7		B	CRO	20	4	3	3
3992		LEAR	11	15	0011	S29	W28	11	12.8		B	BXO	10	2	4	3
3992		RAMY	11	15	1325	S26	W38	11	12.6		B	BXO	30	2	3	3
3992	23437	MWIL	11	15	1530	S27	W38	11	12.7	2	(AP)					
3986	23427	MWIL	11	06	1700	N06	E79	11	12.6	2	(AP)					
3986		LEAR	11	08	0020	N06	E65	11	12.9		A	AXX		1		3
3986		RAMY	11	08	1225	N07	E62	11	13.2		B	BXO	20	4	4	4
3986		HOLL	11	08	2258	N05	E55	11	13.1		A	AXX		1		3
3986		MANI	11	08	2326	N05	E53	11	12.9			BXO	20	4	3	3
3986		PALE	11	09	1914	N05	E43	11	13.0		B	BXO	20	3	4	3
3986		HOLL	11	09	2006	N06	E40	11	12.8		A	AXX		1		2
3986		MANI	11	10	0039	N05	E40	11	13.0		B	BXO	10	4	4	2
3986		LEAR	11	10	0115	N06	E38	11	12.9		A	AXX		1		3
3986		MANI	11	11	0001	N05	E27	11	13.0		B	BXO	10	4	3	3
3986		LEAR	11	11	0016	N06	E27	11	13.0		B	BXO	10	6	5	3
3984		HOLL	11	07	1533	S14	E86	11	14.2		A	HSX	50	1	2	2
3984	23429	MWIL	11	07	1600	S15	E82	11	13.9	3	AP					
3984		PALE	11	07	1830	S16	E82	11	14.0		A	HSX	100	1	2	4
3984		LEAR	11	08	0020	S14	E78	11	13.9		B	HSX	140	1	2	3
3984		RAMY	11	08	1225	S13	E73	11	14.0		B	CKO	160	3	5	4
3984		PALE	11	08	1920	S15	E68	11	14.0		A	HSX	130	1	2	2
3984		HOLL	11	08	2258	S15	E66	11	14.0		A	HAX	190	2	2	3
3984		MANI	11	08	2326	S15	E66	11	14.0			HSX	190	1	2	3
3984		PALE	11	09	1914	S15	E55	11	14.0		A	HSX	120	1	2	3
3984		HOLL	11	09	2006	S15	E45	11	13.2		A	HSX	70	1	2	2
3984		MANI	11	10	0039	S15	E52	11	14.0		B	CSO	140	2	3	2
3984		LEAR	11	10	0115	S16	E53	11	14.1		B	CSO	110	3	4	3
3984		RAMY	11	10	1430	S16	E45	11	14.0		A	HHX	90	1	2	3
3984		BOUL	11	10	1720	S14	E42	11	13.9		A	HSX	120	1	2	2
3984		PALE	11	10	1823	S16	E43	11	14.0		A	HSX	110	1	2	3
3984		MANI	11	10	2350	S15	E39	11	13.9			HSX	130	1	2	3
3984		LEAR	11	11	0016	S15	E39	11	14.0		A	HSX	120	1	2	3
3984		RAMY	11	11	1455	S15	E31	11	14.0		A	HHX	100	1	3	2
3984		PALE	11	11	1750	S15	E32	11	14.2		B	CSO	50	2	3	2
3984	23429	MWIL	11	11	1800	S15	E28	11	13.9	5	(AP)					
3984		MANI	11	11	2318	S15	E26	11	13.9			CSO	120	3	2	3
3984		LEAR	11	12	0010	S15	E26	11	14.0		A	HSX	120	1	2	3
3984		RAMY	11	12	1507	S16	E18	11	14.0		B	CHO	80	3	3	1
3984	23429	MWIL	11	12	1600	S15	E17	11	14.0	5	(AP)					
3984		HOLL	11	12	1628	S14	E16	11	13.9		A	HSX	150	2	2	3
3984		BOUL	11	12	1700	S12	E16	11	13.9		B	CSO	70	2	3	1
3984		PALE	11	12	1802	S15	E15	11	13.9		B	CSO	110	2	3	3
3984		LEAR	11	13	0032	S16	E12	11	13.9		B	CSO	100	4	3	3
3984		RAMY	11	13	1445	S14	E04	11	13.9		B	CHO	100	4	3	3
3984		HOLL	11	13	1716	S14	E03	11	13.9		A	HSX	90	1	2	3

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3984		PALE	11	13	1900	S14	E02	11	13.9		A	HSX	80	1	2	3
3984		BOUL	11	13	1905	S15	E04	11	14.1		B	CSO	100	3	7	2
3984	23429	MWIL	11	13	1930	S15	E01	11	13.9	5	AP					
3984		LEAR	11	14	0038	S14	W02	11	13.9		A	HSX	110	1	2	2
3984		RAMY	11	14	1240	S15	W09	11	13.8		B	DSO	110	5	3	4
3984	23429	MWIL	11	14	1600	S14	W10	11	13.9	5	(AP)					
3984		PALE	11	14	1920	S15	W12	11	13.9		B	CSO	80	4	3	3
3984		HOLL	11	14	2020	S16	W12	11	13.9		B	CSO	90	2	4	3
3984		MANI	11	14	2317	S15	W14	11	13.9			CSO	110	4	4	3
3984		LEAR	11	15	0011	S14	W15	11	13.9		A	CSX	100	2	2	3
3984		RAMY	11	15	1325	S14	W22	11	13.9		B	CSO	90	3	3	3
3984	23429	MWIL	11	15	1530	S14	W23	11	13.9	5	(AP)					
3984		HOLL	11	15	1533	S16	W23	11	13.9		A	HSX	90	1	2	3
3984		BOUL	11	15	1808	S12	W25	11	13.9		A	HSX	40	1	1	1
3984		PALE	11	15	2013	S14	W26	11	13.9		A	HSX	50	1	2	2
3984		MANI	11	15	2313	S15	W26	11	14.0			CSO	110	5	4	3
3984		MANI	11	16	0001	S15	W26	11	14.0		B	CSO	110	5	4	3
3984		LEAR	11	16	0017	S13	W27	11	14.0		B	CSO	90	3	4	3
3984		RAMY	11	16	1315	S14	W35	11	13.9		B	CAO	80	5	4	3
3984		BOUL	11	16	1515	S13	W36	11	13.9		B	CSO	60	3	4	1
3984		PALE	11	16	1957	S15	W39	11	13.9		A	HAX	50	2	2	3
3984		LEAR	11	17	0017	S14	W40	11	14.0		B	CSO	80	4	3	4
3984		RAMY	11	17	1445	S14	W49	11	13.9		A	HAX	60	1	2	3
3984		BOUL	11	17	1515	S12	W50	11	13.9		B	CRO	20	3	1	1
3984		MANI	11	17	2322	S14	W54	11	13.9			HSX	50	1	1	3
3984		LEAR	11	18	0108	S15	W55	11	13.9		A	HSX	30	3	2	3
3984		RAMY	11	18	1330	S14	W61	11	13.9		A	AXX	20	2	1	4
3984		BOUL	11	18	1530	S13	W62	11	14.0		A	AXX	10	1	1	2
3984		HOLL	11	18	1650	S16	W63	11	13.9		B	BXO	10	3	3	4
3984		MANI	11	18	2316	S14	W67	11	13.9			AXX	10	1		3
3984		LEAR	11	19	0017	S14	W68	11	13.9		A	AXX		1		3
3984		MANI	11	20	0030	S14	W80	11	14.0			AXX	20	1		3
0004		HOLL	11	13	1716	N16	E10	11	14.5		A	AXX		1		3
0004		PALE	11	13	1900	N17	E10	11	14.6		A	AXX		1		3
3991		HOLL	11	08	2258	N08	E70	11	14.2		A	AXX		1		3
3991		MANI	11	08	2326	N08	E69	11	14.2			AXX	10	1	1	3
3991		PALE	11	10	1823	N08	E52	11	14.7		A	AXX	10	1	1	3
3991		MANI	11	11	0001	N08	E49	11	14.7		A	AXX		1		3
3991	23433	MWIL	11	11	1800	N10	E43	11	15.0	2	(AP)					
3991		RAMY	11	14	1240	N09	W00	11	14.5		A	AXX		1		4
3991	23439	MWIL	11	14	1600	N04	W05	11	14.3	2	(AP)					
3991		RAMY	11	15	1325	N05	W17	11	14.3		B	BXO	20	2	2	3
3991	23439	MWIL	11	15	1530	N04	W18	11	14.3	3	(AP)					
3991		BOUL	11	16	1515	N06	W32	11	14.2		A	AXX		1		1
3991		LEAR	11	17	0017	N03	W38	11	14.2		A	AXX	10	2	1	4
0005		HOLL	11	13	1716	N25	E13	11	14.7		B	BXO	10	2	3	3
3995		MANI	11	10	0039	S15	E65	11	15.0		A	AXX	10	1		2
3995		PALE	11	10	1823	S17	E55	11	14.9		B	BXO	20	4	3	3
3995		MANI	11	11	0001	S15	E49	11	14.7		A	HSX	160	1	2	3
3995		MANI	11	11	0001	S16	E52	11	14.9		B	BXO	20	5	3	3
3995		LEAR	11	11	0016	S17	E53	11	15.0		A	AXX		2	2	3
3995	23431	MWIL	11	11	1800	S16	E38	11	14.6	2	(AP)					
3995	23431	MWIL	11	12	1600	S16	E28	11	14.8	3	(B)					
3995		BOUL	11	13	1905	S16	E12	11	14.7		B	CRI	30	9	4	2
3995	23431	MWIL	11	13	1930	S16	E13	11	14.8	4	B					
3995		RAMY	11	14	1240	S17	E03	11	14.8		B	DAO	70	16	6	4
3995	23431	MWIL	11	14	1600	S16	E02	11	14.8	5	(BY)					
3995		PALE	11	14	1920	S16	W01	11	14.7		B	CSO	50	9	5	3
3995		HOLL	11	14	2020	S17	W01	11	14.8		B	CAO	80	6	5	3
3995		MANI	11	14	2317	S16	W04	11	14.7			CSO	70	8	5	3
3995		LEAR	11	15	0011	S16	W08	11	14.4		B	BXO		2	2	3
3995		RAMY	11	15	1325	S15	W12	11	14.6		B	CSO	40	10	8	3
3995	23431	MWIL	11	15	1530	S15	W13	11	14.7	5	(BP)					
3995		HOLL	11	15	1533	S16	W14	11	14.6		A	HSX	30	2	2	3
3995		BOUL	11	15	1808	S12	W16	11	14.5		A	HSX	30	1	1	1
3995		PALE	11	15	2013	S15	W17	11	14.6		A	HSX	30	1	1	2
3995		MANI	11	15	2313	S15	W18	11	14.6			HSX	40	1	2	3

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3995		MANI	11	16	0001	S15	W18	11	14.6		A	HSX	40	1	2	3
3995		LEAR	11	16	0017	S14	W19	11	14.6		A	HSX	30	1	1	3
3995		RAMY	11	16	1315	S15	W26	11	14.6		A	HAX	70	1	2	3
3995		BOUL	11	16	1515	S12	W27	11	14.6		A	HSX	20	1	1	1
3995		PALE	11	16	1957	S14	W30	11	14.6		A	HSX	30	1	1	3
3995		LEAR	11	17	0017	S16	W32	11	14.6		B	CRO	20	4	7	4
3995		RAMY	11	17	1445	S14	W39	11	14.7		A	CAX	30	2	2	3
3995		BOUL	11	17	1515	S12	W40	11	14.6		A	AXX	10	3	2	1
3995		MANI	11	17	2322	S14	W44	11	14.6			CSO	30	3	2	3
3995		LEAR	11	18	0108	S15	W46	11	14.6		A	HRX	10	2	2	3
3995		RAMY	11	18	1330	S14	W53	11	14.6		B	DRO	40	3	3	4
3995		BOUL	11	18	1530	S13	W52	11	14.7		A	AXX	10	2	2	2
3995		HOLL	11	18	1650	S15	W55	11	14.5		B	CSO	20	5	3	4
3995		MANI	11	18	2316	S14	W58	11	14.6			CRO	20	4	2	3
3995		LEAR	11	19	0017	S15	W59	11	14.5		A	AXX		2	1	3
3995		HOLL	11	19	1540	S15	W68	11	14.5		B	DRO	50	4	3	3
3995		PALE	11	19	2030	S15	W68	11	14.7		B	BXO	30	3	2	1
3995		MANI	11	20	0030	S14	W72	11	14.6			BXO	20	3	2	3
3995		LEAR	11	20	0039	S15	W73	11	14.5		A	AXX		2	1	3
3990		PALE	11	09	1914	S07	E67	11	14.8		A	HSX	420	1	2	3
3990		HOLL	11	09	2006	S07	E67	11	14.9		A	HSX	140	1	2	2
3990		MANI	11	10	0039	S07	E64	11	14.8		A	HSX	200	1	2	2
3990		LEAR	11	10	0115	S07	E64	11	14.8		A	HSX	140	1	2	3
3990		RAMY	11	10	1430	S08	E58	11	15.0		A	HKX	110	1	3	3
3990		BOUL	11	10	1720	S06	E54	11	14.8		A	HSX	150	1	2	2
3990		PALE	11	10	1823	S07	E55	11	14.9		A	HSX	140	1	2	3
3990		MANI	11	11	0001	S07	E52	11	14.9		A	HSX	170	1	2	3
3990		LEAR	11	11	0016	S07	E51	11	14.8		A	HSX	160	1	2	3
3990		RAMY	11	11	1455	S07	E44	11	14.9		A	HHX	140	1	3	2
3990		PALE	11	11	1750	S07	E42	11	14.9		A	HSX	130	1	2	2
3990	23432	MWIL	11	11	1800	S07	E41	11	14.8	6	(AP)					
3990		MANI	11	11	2318	S07	E39	11	14.9			HSX	160	1	2	3
3990		LEAR	11	12	0010	S08	E39	11	14.9		A	HSX	210	1	2	3
3990		RAMY	11	12	1507	S08	E31	11	15.0		B	CHO	140	2	3	1
3990	23432	MWIL	11	12	1600	S07	E29	11	14.8	6	(BP)					
3990		HOLL	11	12	1628	S07	E29	11	14.9		A	HSX	190	1	2	3
3990		BOUL	11	12	1700	S07	E28	11	14.8		A	HSX	100	1	2	1
3990		PALE	11	12	1802	S07	E28	11	14.9		A	HSX	160	1	2	3
3990		LEAR	11	13	0032	S08	E25	11	14.9		A	HSX	190	1	2	3
3990		RAMY	11	13	1445	S08	E18	11	15.0		A	HHX	150	1	3	3
3990		HOLL	11	13	1716	S07	E16	11	14.9		A	HHX	160	1	3	3
3990		PALE	11	13	1900	S07	E15	11	14.9		A	HSX	150	1	2	3
3990		BOUL	11	13	1905	S07	E14	11	14.8		A	HSX	150	3	2	2
3990	23432	MWIL	11	13	1930	S07	E15	11	14.9	6	BP					
3990		LEAR	11	14	0038	S08	E12	11	14.9		A	HSX	170	1	2	2
3990		RAMY	11	14	1240	S08	E05	11	14.9		A	HHX	190	3	3	4
3990	23432	MWIL	11	14	1600	S07	E04	11	15.0	5	(AP)					
3990		PALE	11	14	1920	S08	E01	11	14.9		A	HHX	160	1	3	3
3990		HOLL	11	14	2020	S08	E01	11	14.9		A	HSX	140	2	2	3
3990		MANI	11	14	2317	S07	W01	11	14.9			HSX	190	2	2	3
3990		LEAR	11	15	0011	S07	W01	11	14.9		A	HSX	170	2	2	3
3990		RAMY	11	15	1325	S07	W08	11	15.0		A	HAX	160	4	2	3
3990	23432	MWIL	11	15	1530	S07	W09	11	15.0	5	(AP)					
3990		HOLL	11	15	1533	S07	W09	11	15.0		A	HSX	160	2	2	3
3990		BOUL	11	15	1808	S08	W11	11	14.9		A	HSX	120	1	2	1
3990		PALE	11	15	2013	S07	W12	11	14.9		A	HHX	190	1	3	2
3990		MANI	11	16	0001	S07	W14	11	15.0		A	HHX	170	1	3	3
3990		LEAR	11	16	0017	S07	W14	11	15.0		A	HSX	160	1	2	3
3990		RAMY	11	16	1315	S07	W21	11	15.0		A	HAX	190	2	2	3
3990		BOUL	11	16	1515	S07	W22	11	15.0		A	HSX	140	1	2	1
3990		PALE	11	16	1957	S07	W25	11	15.0		A	HHX	160	1	3	3
3990		LEAR	11	17	0017	S07	W27	11	15.0		A	HSX	190	2	2	4
3990		RAMY	11	17	1445	S07	W35	11	15.0		A	HAX	170	1	2	3
3990		BOUL	11	17	1515	S05	W35	11	15.0		A	HSX	80	1	2	1
3990		MANI	11	17	2322	S07	W40	11	15.0			HSX	130	1	2	3
3990		LEAR	11	18	0108	S08	W42	11	14.9		A	HSX	160	1	2	3
3990		RAMY	11	18	1330	S07	W48	11	15.0		A	HAX	140	2	2	4
3990		BOUL	11	18	1530	S07	W48	11	15.0		A	HSX	150	1	2	2
3990		HOLL	11	18	1650	S07	W50	11	15.0		A	HSX	130	1	2	4
3990		MANI	11	18	2316	S07	W53	11	15.0			HSX	150	1	2	3

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3990		LEAR	11	19	0017	S08	W54	11	15.0		A	HSX	140	1	2	3
3990		BOUL	11	19	1540	S06	W60	11	15.2		B	CRO	40	1	1	2
3990		HOLL	11	19	1540	S07	W63	11	14.9		B	CSO	100	2	3	3
3990	23432	MWIL	11	19	1600	S08	W62	11	15.0	4	AP					
3990		PALE	11	19	2030	S08	W65	11	15.0		A	HSX	100	1	2	1
3990		MANI	11	20	0030	S07	W68	11	14.9			HSX	180	1	2	3
3990		LEAR	11	20	0039	S07	W68	11	14.9		A	HSX	70	1	2	3
3990		HOLL	11	20	1453	S07	W75	11	15.0		A	HSX	100	1	2	3
3990		BOUL	11	20	1655	S06	W79	11	14.8		A	HSX	120	1	2	2
3990		LEAR	11	21	0028	S07	W80	11	15.0		A	HSX	40	1	2	3
3987		RAMY	11	08	1225	S16	E85	11	15.0		A	HKX	160	1	5	4
3987		PALE	11	08	1920	S10	E80	11	14.8		B	DAO	100	2	2	2
3987		HOLL	11	08	2258	S10	E80	11	15.0		B	DAO	300	2	4	3
3987		MANI	11	08	2326	S08	E81	11	15.1			DSO	780	2	8	3
3987		PALE	11	09	1914	S12	E74	11	15.4		BG	EKI	160	10	12	3
3987		HOLL	11	09	2006	S14	E73	11	15.4		B	EKO	630	7	13	2
3987		MANI	11	10	0039	S12	E71	11	15.4		B	EKI	1000	21	12	2
3987		LEAR	11	10	0115	S13	E71	11	15.4		BD	EKI	560	26	14	3
3987		RAMY	11	10	1430	S14	E65	11	15.5		BG	EKI	500	13	14	3
3987		BOUL	11	10	1720	S11	E61	11	15.3		BGD	EKI	740	24	14	2
3987		PALE	11	10	1823	S12	E61	11	15.4		BGD	EHC	670	39	13	3
3987		MANI	11	11	0001	S12	E58	11	15.4		BGD	EKI	700	46	15	3
3987		LEAR	11	11	0016	S11	E58	11	15.4		BGD	EKI	1040	41	14	3
3987		RAMY	11	11	1455	S12	E49	11	15.3		BGD	EHI	280	31	13	2
3987		PALE	11	11	1750	S12	E46	11	15.2		BGD	FKI	660	29	16	2
3987	23434	MWIL	11	11	1800	S12	E47	11	15.3	5	(D)					
3987		MANI	11	11	2318	S12	E43	11	15.2			FKI	680	47	16	3
3987		LEAR	11	12	0010	S12	E43	11	15.2		BGD	FKC	1000	52	16	3
3987		RAMY	11	12	1507	S14	E35	11	15.3		BGD	EKI	750	59	17	1
3987	23434	MWIL	11	12	1600	S12	E35	11	15.3	5	(D)					
3987		HOLL	11	12	1628	S12	E34	11	15.2		BGD	FKI	970	41	16	3
3987		BOUL	11	12	1700	S13	E32	11	15.1		BGD	FKI	600	19	16	1
3987		PALE	11	12	1802	S13	E32	11	15.2		BGD	FKI	740	47	16	3
3987		LEAR	11	13	0032	S12	E30	11	15.3		BGD	FKC	1090	58	17	3
3987		RAMY	11	13	1445	S14	E23	11	15.4		BGD	FHI	550	59	16	3
3987		HOLL	11	13	1716	S12	E18	11	15.1		BGD	FKC	710	65	16	3
3987		PALE	11	13	1900	S12	E19	11	15.2		BGD	FKI	730	46	16	3
3987		BOUL	11	13	1905	S11	E20	11	15.3		BGD	FKC	1140	67	20	2
3987	23434	MWIL	11	13	1930	S12	E18	11	15.2	6	D					
3987		LEAR	11	14	0038	S13	E13	11	15.0		BGD	FKC	1090	81	18	2
3987		RAMY	11	14	1240	S12	E10	11	15.3		BGD	FKC	790	99	18	4
3987	23434	MWIL	11	14	1600	S12	E07	11	15.2	5	(D)					
3987		PALE	11	14	1920	S12	E06	11	15.3		BGD	FKI	630	54	16	3
3987		HOLL	11	14	2020	S13	E06	11	15.3		BGD	FKI	1110	70	19	3
3987		MANI	11	14	2317	S12	E03	11	15.2			FKI	880	63	16	3
3987		LEAR	11	15	0011	S13	E03	11	15.2		BGD	FKC	1060	87	17	3
3987		RAMY	11	15	1325	S12	W06	11	15.1		BGD	FKC	850	99	21	3
3987	23434	MWIL	11	15	1530	S12	W05	11	15.3	5	(D)					
3987		HOLL	11	15	1533	S12	W04	11	15.3		BGD	FKI	890	58	20	3
3987		BOUL	11	15	1808	S09	W08	11	15.2		BGD	EKI	620	29	14	1
3987		PALE	11	15	2013	S11	W08	11	15.2		BGD	FKI	770	46	17	2
3987		MANI	11	15	2313	S12	W10	11	15.2			FKI	650	57	16	3
3987		MANI	11	16	0001	S12	W10	11	15.2		BGD	FKI	650	57	16	3
3987		LEAR	11	16	0017	S11	W11	11	15.2		BD	FKC	1070	84	16	3
3987		RAMY	11	16	1315	S12	W17	11	15.3		BGD	FAI	280	67	16	3
3987		BOUL	11	16	1515	S09	W18	11	15.3		BGD	EKI	490	22	14	1
3987		PALE	11	16	1957	S11	W22	11	15.2		BGD	FKI	680	44	16	3
3987		LEAR	11	17	0017	S12	W24	11	15.2		BD	FKC	860	83	17	4
3987		RAMY	11	17	1445	S12	W33	11	15.1		BGD	FAI	570	39	16	3
3987		BOUL	11	17	1515	S09	W36	11	14.9		BGD	EKI	650	73	14	1
3987		MANI	11	17	2322	S12	W36	11	15.3			EKI	660	57	15	3
3987		LEAR	11	18	0108	S12	W39	11	15.1		BD	FKC	690	52	16	3
3987		RAMY	11	18	1330	S12	W40	11	15.5		BGD	FKI	530	75	20	4
3987		BOUL	11	18	1530	S11	W45	11	15.3		BG	EAI	270	39	14	2
3987		HOLL	11	18	1650	S12	W48	11	15.1		BGD	FKI	340	39	16	4
3987		MANI	11	18	2316	S12	W51	11	15.1			FKI	430	36	16	3
3987		LEAR	11	19	0017	S12	W52	11	15.1		BD	FKC	420	30	16	3
3987		BOUL	11	19	1540	S11	W62	11	15.0		B	BXO	140	16	12	2
3987		HOLL	11	19	1540	S12	W60	11	15.1		BG	FAI	180	10	16	3
3987	23434	MWIL	11	19	1600	S13	W62	11	15.0	4	B					

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NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
3987		PALE	11	19	2030	S12	W63	11	15.1		BG	EAI	120	7	11	1
3987		MANI	11	20	0030	S12	W66	11	15.0			EAI	190	6	15	3
3987		LEAR	11	20	0039	S13	W66	11	15.0		B	EKI	310	12	11	3
3987		HOLL	11	20	1453	S12	W75	11	15.0		B	CAO	50	5	5	3
3987		BOUL	11	20	1655	S10	W80	11	14.7		B	CSO	90	6	2	2
3987		LEAR	11	21	0028	S12	W81	11	14.9		B	DAO	40	5	7	3
3996		LEAR	11	15	0011	N02	E06	11	15.5		A	AXX		3	2	3
3996		RAMY	11	15	1325	N02	W01	11	15.5		B	BXO	20	5	3	3
3996	23441	MWIL	11	15	1530	N02	W03	11	15.4	3	(AP)					
3996		HOLL	11	15	1533	N02	W04	11	15.3		A	AXX		1		3
3996		PALE	11	15	2013	N02	W06	11	15.4		A	AXX	10	1	1	2
3996		MANI	11	15	2313	N02	W07	11	15.4			AXX		1	1	3
3996		MANI	11	16	0001	N02	W07	11	15.5		A	AXX		1	1	3
3996		LEAR	11	16	0017	N02	W08	11	15.4		A	AXX		1		3
4003		RAMY	11	18	1330	N10	W20	11	17.1		A	AXX	10	2	1	4
4003		MANI	11	21	2321	N12	W69	11	16.8			BXO	30	1	3	3
4003		LEAR	11	22	0011	N10	W69	11	16.8		B	CAO	10	3	3	3
4003		RAMY	11	22	1300	N12	W74	11	17.0		B	DKO	250	6	8	3
4003		HOLL	11	22	1540	N12	W75	11	17.0		B	DAO	160	9	8	2
4003		BOUL	11	22	1545	N12	W75	11	17.0		B	DSO	180	6	10	2
4003		LEAR	11	23	0052	N12	W82	11	16.9		B	EKI	450	11	11	3
3999		LEAR	11	18	0108	S14	W10	11	17.3		A	AXX		1		3
3999		RAMY	11	18	1330	S14	W18	11	17.2		B	BXX	20	2	3	4
3999		BOUL	11	18	1530	S13	W19	11	17.2		A	AXX	10	1		2
3999		HOLL	11	18	1650	S15	W20	11	17.2		B	BXO	10	3	3	4
3999		MANI	11	18	2316	S14	W25	11	17.1			AXX	10	1		3
3999		LEAR	11	19	0017	S14	W26	11	17.0		A	AXX		1		3
3999		BOUL	11	19	1540	S13	W32	11	17.2		A	AXX	10	2	1	2
3999		HOLL	11	19	1540	S14	W34	11	17.1		B	CAO	20	3	3	3
3999	23442	MWIL	11	19	1600	S16	W35	11	17.0	3	X					
3999		PALE	11	19	2030	S15	W36	11	17.1		B	CSO	30	3	4	1
3999		MANI	11	20	0030	S14	W39	11	17.1			CRO	30	4	2	3
3999		LEAR	11	20	0039	S15	W39	11	17.1		B	CAO	30	5	4	3
3999		HOLL	11	20	1453	S14	W46	11	17.1		B	CRO	30	4	4	3
3999		BOUL	11	20	1655	S13	W48	11	17.1		B	CRO	10	4	4	2
3999		LEAR	11	21	0028	S15	W52	11	17.1		B	BXO	10	3	4	3
3993	23436	MWIL	11	12	1600	S05	E73	11	18.1	3	(AF)					
3993		LEAR	11	13	0032	S06	E78	11	18.9		B	BXO	10	3	4	3
3993		RAMY	11	13	1445	S07	E61	11	18.2		B	BXO	40	4	5	3
3993		HOLL	11	13	1716	S05	E57	11	18.0		B	CRO	30	3	4	3
3993		PALE	11	13	1900	S06	E58	11	18.1		B	CRO	20	2	4	3
3993		BOUL	11	13	1905	S07	E57	11	18.1		B	DRI	30	7	5	2
3993	23436	MWIL	11	13	1930	S05	E57	11	18.1	3	B					
3993		LEAR	11	14	0038	S06	E54	11	18.1		B	CRO	20	4	5	2
3993		RAMY	11	14	1240	S07	E46	11	18.0		B	CRO	30	4	5	4
3993	23436	MWIL	11	14	1600	S05	E45	11	18.0	4	(B)					
3993		PALE	11	14	1920	S07	E42	11	18.0		B	CRO	20	2	6	3
3993		HOLL	11	14	2020	S06	E43	11	18.1		B	BXO	10	3	5	3
3993		MANI	11	14	2317	S06	E39	11	17.9			CRO	20	3	5	3
3993		LEAR	11	15	0011	S05	E40	11	18.0		B	BXO	10	3	5	3
3993		RAMY	11	15	1325	S05	E29	11	17.7		A	AXX	10	1	1	3
3993	23436	MWIL	11	15	1530	S05	E29	11	17.8	3	(BP)					
3993		HOLL	11	15	1533	S05	E28	11	17.7		A	AXX		1		3
3993		PALE	11	15	2013	S05	E26	11	17.8		A	AXX	10	1	1	2
3993		MANI	11	15	2313	S05	E24	11	17.8			AXX	10	1	1	3
3993		MANI	11	16	0001	S05	E24	11	17.8		A	AXX	10	1	1	3
3993		LEAR	11	16	0017	S04	E24	11	17.8		A	AXX		1		3
3993		LEAR	11	20	0039	S05	W30	11	17.8		B	BXO		2	3	3
3993		BOUL	11	20	1655	S07	W37	11	17.9		B	BXO	10	2	2	2
4002		LEAR	11	21	0028	S07	W33	11	18.5		B	BXO	10	4	5	3
4002		BOUL	11	21	1600	S05	W40	11	18.7		B	BXO	10	3	5	1
4002		HOLL	11	21	1715	S08	W42	11	18.6		B	BXO	10	4	5	2
4002	23445	MWIL	11	21	1945	S07	W43	11	18.6	4	(B)					
4002		MANI	11	21	2321	S08	W46	11	18.5			BXO	10	3	7	3
4002		LEAR	11	22	0011	S08	W46	11	18.6		B	DRO	20	4	6	3
4002		RAMY	11	22	1300	S08	W55	11	18.4		B	BXX	20	3	7	3

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NOVEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hem!)	Spot Count	Long. Extent (Deg)	Qual
4002		HOLL	11	22	1540	S07	W55	11	18.5		B	BXO	20	4	7	2
4002		LEAR	11	23	0052	S05	W64	11	18.2		A	AXX		2	1	3
4004		MANI	11	21	2321	N17	W39	11	19.0			BXO	10	5	4	3
4004		LEAR	11	22	0011	N15	W38	11	19.1		B	BXO	10	5	4	3
4004		RAMY	11	22	1300	N16	W45	11	19.1		B	CAO	60	6	5	3
4004		HOLL	11	22	1540	N17	W46	11	19.2		B	CAO	80	5	5	2
4004		BOUL	11	22	1545	N18	W47	11	19.1		B	BXO	30	4	5	2
4004		LEAR	11	23	0052	N17	W52	11	19.1		B	CAO	90	11	6	3
4004	23448	MWIL	11	23	1800	N17	W63	11	19.0	4	X					
4004		LEAR	11	24	0032	N17	W68	11	18.9		A	HSX	20	1	1	3
4004		RAMY	11	24	1350	N18	W75	11	18.9		B	CAO	20	3	7	3
4004	23448	MWIL	11	24	1700	N17	W76	11	18.9	4	X					
4004		MANI	11	24	2338	N17	W84	11	18.6			HRX	50	1	2	2
4004		LEAR	11	25	0035	N17	W85	11	18.6		A	HSX	20	1	1	3
3994		RAMY	11	13	1445	S14	E82	11	19.8		A	AXX	30	1	4	3
3994		HOLL	11	13	1716	S13	E78	11	19.6		A	HSX	40	1	2	3
3994		PALE	11	13	1900	S13	E79	11	19.8		A	HSX	80	1	2	3
3994		BOUL	11	13	1905	S13	E85	11	20.2		B	DSO	120	3	9	2
3994	23438	MWIL	11	13	1930	S13	E78	11	19.7	3	AP					
3994		LEAR	11	14	0038	S13	E74	11	19.6		A	HSX	70	1	2	2
3994		RAMY	11	14	1240	S14	E68	11	19.7		B	DAO	80	4	7	4
3994	23440	MWIL	11	14	1600	S11	E69	11	19.9	2	(AP)					
3994	23438	MWIL	11	14	1600	S13	E67	11	19.7	4	(B)					
3994		PALE	11	14	1920	S13	E64	11	19.6		A	HSX	70	1	2	3
3994		HOLL	11	14	2020	S13	E65	11	19.8		A	HSX	60	1	1	3
3994		MANI	11	14	2317	S13	E66	11	20.0			CSO	150	6	8	3
3994		LEAR	11	15	0011	S13	E65	11	19.9		B	CSO	110	5	9	3
3994		RAMY	11	15	1325	S15	E58	11	20.0		B	DAO	110	11	10	3
3994	23438	MWIL	11	15	1530	S14	E56	11	19.9	5	(B)					
3994		HOLL	11	15	1533	S14	E58	11	20.0		BG	ESO	130	10	11	3
3994		BOUL	11	15	1808	S13	E53	11	19.8		B	CSO	70	3	9	1
3994		PALE	11	15	2013	S15	E55	11	20.0		B	ESO	120	7	11	2
3994		MANI	11	16	0001	S13	E54	11	20.1		B	DAO	160	13	12	3
3994		LEAR	11	16	0017	S14	E53	11	20.0		B	EAI	170	16	12	3
3994		RAMY	11	16	1315	S14	E46	11	20.0		B	EAO	90	12	12	3
3994		BOUL	11	16	1515	S13	E43	11	19.9		B	DSO	90	7	10	1
3994		PALE	11	16	1957	S14	E43	11	20.1		B	ESO	110	11	11	3
3994		LEAR	11	17	0017	S11	E40	11	20.0		B	ESI	190	29	13	4
3994		RAMY	11	17	1445	S13	E33	11	20.1		B	EAO	120	27	12	3
3994		BOUL	11	17	1515	S11	E29	11	19.8		B	ESO	150	26	11	1
3994		MANI	11	17	2322	S13	E26	11	19.9			ESO	150	28	12	3
3994		LEAR	11	18	0108	S13	E26	11	20.0		B	EAO	320	26	14	3
3994		RAMY	11	18	1330	S12	E19	11	20.0		B	EAI	330	62	13	4
3994		BOUL	11	18	1530	S11	E17	11	19.9		BG	EAI	210	43	13	2
3994		HOLL	11	18	1650	S12	E18	11	20.1		BG	EAI	370	56	13	4
3994		MANI	11	18	2316	S13	E14	11	20.0			EAI	540	47	14	3
3994		LEAR	11	19	0017	S13	E13	11	20.0		BG	EKI	600	73	14	3
3994		BOUL	11	19	1540	S11	E05	11	20.0		BG	ESI	430	50	13	2
3994		HOLL	11	19	1540	S13	E04	11	20.0		BGD	EKI	1220	51	15	3
3994	23438	MWIL	11	19	1600	S12	E02	11	19.8	6	BY					
3994		PALE	11	19	2030	S13	E02	11	20.0		BGD	EKI	750	39	15	1
3994		MANI	11	20	0030	S12	W01	11	19.9			EKC	1210	76	13	3
3994		LEAR	11	20	0039	S13	W01	11	20.0		BGD	EKC	950	61	14	3
3994		HOLL	11	20	1453	S12	W08	11	20.0		BGD	FKI	1520	62	16	3
3994		BOUL	11	20	1655	S10	W11	11	19.9		BGD	FKI	1070	62	16	2
3994		LEAR	11	21	0028	S12	W15	11	19.9		BGD	FKC	1490	85	17	3
3994		BOUL	11	21	1600	S09	W24	11	19.9		BGD	EKC	740	57	12	1
3994		HOLL	11	21	1715	S10	W27	11	19.7		BGD	FKC	1540	72	16	2
3994	23438	MWIL	11	21	1945	S10	W27	11	19.8	5	(BY)					
3994		MANI	11	21	2321	S11	W30	11	19.7			FKC	1740	63	17	3
3994		LEAR	11	22	0011	S11	W29	11	19.8		BGD	FKC	1850	57	16	3
3994		RAMY	11	22	1300	S13	W37	11	19.7		BGD	FKI	1270	54	20	3
3994		HOLL	11	22	1540	S10	W40	11	19.6		BGD	FKI	1470	34	16	2
3994		BOUL	11	22	1545	S09	W38	11	19.8		BGD	EKI	1470	35	16	2
3994		LEAR	11	23	0052	S10	W45	11	19.7		BGD	FKI	1810	57	20	3
3994	23438	MWIL	11	23	1800	S10	W54	11	19.7	6	D					
3994		LEAR	11	24	0032	S10	W58	11	19.7		BGD	EKI	1940	38	13	3
3994		RAMY	11	24	1350	S10	W68	11	19.5		BGD	EKI	1540	32	14	3
3994		BOUL	11	24	1540	S12	W67	11	19.6		BGD	FKI	1800	30	19	2

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3994	23438	MWIL	11	24	1700	S10	W66	11	19.7	5	(D)					
3994		MANI	11	24	2338	S11	W71	11	19.6			EKI	1370	20	14	2
3994		LEAR	11	25	0035	S10	W71	11	19.7		BGD	EKI	1660	21	14	3
3994		RAMY	11	25	1522	S11	W78	11	19.8		BGD	EKO	1240	13	11	2
3994	23438	MWIL	11	25	1630	S10	W80	11	19.7	4	(B)					
3994		BOUL	11	25	1630	S11	W81	11	19.6		BGD	FKI	1610	12	16	2
3994		LEAR	11	26	0125	S11	W84	11	19.7		BGD	DKI	240	6	9	3
4001		HOLL	11	20	1453	N11	W04	11	20.3		B	BXO	20	6	3	3
4001		BOUL	11	20	1655	N09	W05	11	20.3		B	BXO	10	5	2	2
4001		LEAR	11	21	0028	N11	W08	11	20.4		B	CRO	20	7	4	3
4001		BOUL	11	21	1600	N12	W15	11	20.5		B	CAO	40	7	6	1
4001		HOLL	11	21	1715	N11	W19	11	20.3		B	DSO	50	11	4	2
4001	23446	MWIL	11	21	1945	N12	W20	11	20.3	4	(BP)					
4001		MANI	11	21	2321	N11	W22	11	20.3			DSO	70	13	5	3
4001		LEAR	11	22	0011	N11	W22	11	20.4		B	DAI	90	17	4	3
4001		RAMY	11	22	1300	N12	W29	11	20.4		B	CAO	50	12	5	3
4001		HOLL	11	22	1540	N11	W31	11	20.3		B	DAI	120	12	5	2
4001		BOUL	11	22	1545	N12	W31	11	20.3		B	CRI	30	12	5	2
4001		LEAR	11	23	0052	N12	W37	11	20.2		B	DAO	110	13	5	3
4001	23446	MWIL	11	23	1800	N11	W44	11	20.4	3	B					
4001		LEAR	11	24	0032	N12	W50	11	20.3		B	DSO	100	13	6	3
4001		RAMY	11	24	1350	N12	W58	11	20.2		B	DAO	130	16	8	3
4001		BOUL	11	24	1540	N11	W57	11	20.4		B	CRO	30	12	7	2
4001	23446	MWIL	11	24	1700	N11	W58	11	20.3	3	(B)					
4001		MANI	11	24	2338	N12	W64	11	20.2			DSO	210	10	7	2
4001		LEAR	11	25	0035	N12	W64	11	20.2		B	DSO	180	9	8	3
4001		RAMY	11	25	1522	N14	W73	11	20.1		B	CAO	40	6	9	2
4001	23446	MWIL	11	25	1630	N12	W72	11	20.3	4	(BF)					
4001		BOUL	11	25	1630	N12	W73	11	20.2		B	CSO	100	4	8	2
4001		LEAR	11	26	0125	N13	W78	11	20.2		B	CSO	50	4	8	3
4001		RAMY	11	26	1350	N13	W80	11	20.5		B	CAO	30	4	3	3
0006		HOLL	11	22	1540	S15	W29	11	20.5		B	DAO	40	2	6	2
0007		HOLL	11	22	1540	S11	W12	11	21.7		A	AXX	10	2	1	2
0008		HOLL	11	27	1818	N11	W71	11	22.4		A	AXX		1		4
0009		BOUL	11	21	1600	S07	E18	11	23.0		A	BXX		1		1
3997		RAMY	11	17	1445	S07	E83	11	23.8		A	HKX	190	1	8	3
3997		BOUL	11	17	1515	S08	E79	11	23.6		A	HSX	150	1	1	1
3997		MANI	11	17	2322	S07	E76	11	23.7			HSX	300	1	2	3
3997		LEAR	11	18	0108	S08	E75	11	23.7		A	HSX	260	1	2	3
3997		RAMY	11	18	1330	S07	E67	11	23.6		A	HSO	190	2	2	4
3997		BOUL	11	18	1530	S08	E67	11	23.7		A	HSX	160	1	2	2
3997		HOLL	11	18	1650	S08	E67	11	23.7		B	CKO	310	4	5	4
3997		MANI	11	18	2316	S07	E64	11	23.8			CSO	260	5	4	3
3997		LEAR	11	19	0017	S09	E62	11	23.7		B	CSO	270	6	4	3
3997		BOUL	11	19	1540	S06	E52	11	23.5		B	CHI	150	3	3	2
3997		HOLL	11	19	1540	S08	E54	11	23.7		B	DSO	280	3	4	3
3997	23443	MWIL	11	19	1600	S07	E54	11	23.7	5	AP					
3997		PALE	11	19	2030	S08	E53	11	23.8		B	DSO	250	2	4	1
3997		MANI	11	20	0030	S07	E50	11	23.8			DHO	270	3	3	3
3997		LEAR	11	20	0039	S08	E49	11	23.7		B	CSI	270	4	5	3
3997		HOLL	11	20	1453	S08	E42	11	23.8		B	DSO	190	3	4	3
3997		BOUL	11	20	1655	S07	E39	11	23.6		B	BXO	260	4	3	2
3997		LEAR	11	21	0028	S08	E37	11	23.8		B	CSI	290	4	4	3
3997		BOUL	11	21	1600	S08	E27	11	23.7		B	CSO	120	2	2	1
3997		HOLL	11	21	1715	S08	E28	11	23.8		B	DSO	190	2	4	2
3997	23443	MWIL	11	21	1945	S08	E26	11	23.8	5	(AP)					
3997		MANI	11	21	2321	S07	E24	11	23.8			CSO	220	5	5	3
3997		LEAR	11	22	0011	S06	E24	11	23.8		B	CSO	240	5	4	3
3997		RAMY	11	22	1300	S08	E17	11	23.8		B	CHO	190	6	4	3
3997		HOLL	11	22	1540	S07	E14	11	23.7		A	HHX	180	1	3	2
3997		BOUL	11	22	1545	S06	E13	11	23.6		A	HSX	160	1	2	2
3997		LEAR	11	23	0052	S07	E09	11	23.7		A	HHX	260	1	3	3
3997	23443	MWIL	11	23	1800	S07	W01	11	23.7	6	AP					
3997		LEAR	11	24	0032	S08	W03	11	23.8		A	HHX	240	6	4	3
3997		RAMY	11	24	1350	S07	W11	11	23.8		B	CHO	180	5	3	3

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

NOVEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Mo	Day	Time (UT)	Lat CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
3997		BOUL	11	24	1540	S06 W11	11	23.8		A	HSX	170	2	3	2
3997	23443	MWIL	11	24	1700	S07 W11	11	23.9	5	(AP)					
3997		MANI	11	24	2338	S07 W16	11	23.8			CSO	260	2	3	2
3997		LEAR	11	25	0035	S07 W17	11	23.8		A	HSX	230	3	4	3
3997		RAMY	11	25	1522	S07 W25	11	23.8		A	HKX	110	1	3	2
3997		BOUL	11	25	1630	S06 W25	11	23.8		A	HHX	190	1	3	2
3997	23443	MWIL	11	25	1630	S07 W25	11	23.8	5	(AP)					
3997		LEAR	11	26	0125	S07 W30	11	23.8		B	CSO	230	3	4	3
3997		RAMY	11	26	1350	S08 W38	11	23.7		A	HHX	230	1	3	3
3997		BOUL	11	26	1520	S05 W38	11	23.8		A	HSX	120	2	5	3
3997	23443	MWIL	11	26	1600	S07 W37	11	23.9	5	(AP)					
3997		LEAR	11	27	0012	S07 W43	11	23.8		A	HSX	190	2	2	3
3997		MANI	11	27	0205	S07 W44	11	23.8			CSO	200	3	3	3
3997	23443	MWIL	11	27	1545	S07 W51	11	23.8	5	(AP)					
3997		HOLL	11	27	1818	S07 W53	11	23.8		A	HSX	110	2	2	4
3997		LEAR	11	28	0018	S07 W56	11	23.8		B	CSO	210	2	3	3
3997		RAMY	11	28	1400	S08 W65	11	23.7		B	CAO	140	4	3	2
3997		HOLL	11	28	1427	S08 W64	11	23.8		B	CSO	130	2	3	2
3997		BOUL	11	28	1600	S05 W67	11	23.7		A	HX	190	1	2	1
3997		MANI	11	29	0001	S07 W70	11	23.8		A	HSX	280	1	2	3
3997		LEAR	11	29	0021	S06 W69	11	23.8		A	HSX	190	1	2	3
3997		RAMY	11	29	1415	S06 W77	11	23.8		A	HAX	130	1	2	2
3997		BOUL	11	29	1530	S07 W80	11	23.6		A	HSX	200	1	2	2
3997		HOLL	11	29	1550	S07 W78	11	23.8		A	HSX	140	1	2	3
3997		MANI	11	29	2348	S07 W84	11	23.7			HSX	370	1	2	2
3997		LEAR	11	30	0110	S06 W82	11	23.9		A	HSX	60	1	2	3
3998		MANI	11	17	2322	N12 E85	11	24.4			HSX	650	1	2	3
3998		LEAR	11	18	0108	N11 E82	11	24.2		A	HSX	190	1	2	3
3998		RAMY	11	18	1330	N11 E73	11	24.1		A	HSO	200	1	2	4
3998		BOUL	11	18	1530	N11 E75	11	24.3		A	HSX	180	1	2	2
3998		HOLL	11	18	1650	N12 E77	11	24.5		B	CSO	190	3	9	4
3998		MANI	11	18	2316	N12 E72	11	24.4			CSO	250	3	8	3
3998		LEAR	11	19	0017	N11 E72	11	24.4		B	CSO	290	5	8	3
3998		BOUL	11	19	1540	N12 E65	11	24.6		B	CHO	180	4	10	2
3998		HOLL	11	19	1540	N12 E65	11	24.6		B	ESO	300	5	11	3
3998	23444	MWIL	11	19	1600	N12 E62	11	24.3	5	BP					
3998		PALE	11	19	2030	N11 E64	11	24.7		B	CSO	150	2	10	1
3998		MANI	11	20	0030	N12 E59	11	24.5			CHO	240	6	9	3
3998		LEAR	11	20	0039	N12 E59	11	24.5		B	CSO	290	5	8	3
3998		HOLL	11	20	1453	N12 E51	11	24.5		B	DSO	260	2	10	3
3998		BOUL	11	20	1655	N12 E52	11	24.6		B	DSI	210	4	8	2
3998		LEAR	11	21	0028	N12 E47	11	24.6		B	CSO	210	5	9	3
3998		BOUL	11	21	1600	N10 E33	11	24.1		A	HSX	180	1	2	1
3998		HOLL	11	21	1715	N12 E34	11	24.3		B	HSO	180	2	2	2
3998	23444	MWIL	11	21	1945	N11 E32	11	24.2	5	(AP)					
3998		MANI	11	21	2321	N12 E31	11	24.3			CSO	180	3	3	3
3998		LEAR	11	22	0011	N12 E30	11	24.3		A	HSX	280	1	2	3
3998		RAMY	11	22	1300	N12 E23	11	24.3		B	CKO	260	3	3	3
3998		HOLL	11	22	1540	N11 E22	11	24.3		A	HHX	240	3	3	2
3998		BOUL	11	22	1545	N11 E21	11	24.2		A	HSX	130	1	2	2
3998		LEAR	11	23	0052	N11 E17	11	24.3		A	HSX	250	3	2	3
3998	23444	MWIL	11	23	1800	N11 E11	11	24.6	6	AP					
3998		LEAR	11	24	0032	N11 E04	11	24.3		A	HSX	270	3	2	3
3998		RAMY	11	24	1350	N12 W02	11	24.4		A	HKX	140	1	3	3
3998		BOUL	11	24	1540	N12 W04	11	24.4		A	HHX	200	1	3	2
3998	23444	MWIL	11	24	1700	N11 W04	11	24.4	5	(AP)					
3998		MANI	11	24	2338	N11 W09	11	24.3			HSX	280	1	3	2
3998		LEAR	11	25	0035	N11 W09	11	24.3		A	HSX	240	1	2	3
3998		RAMY	11	25	1522	N12 W17	11	24.4		B	CHO	210	3	3	2
3998	23444	MWIL	11	25	1630	N11 W17	11	24.4	5	(BP)					
3998		BOUL	11	25	1630	N11 W18	11	24.3		B	DSO	160	3	4	2
3998		LEAR	11	26	0125	N10 W23	11	24.3		B	CSO	160	6	5	3
3998		RAMY	11	26	1350	N11 W28	11	24.5		B	CHO	210	5	5	3
3998		BOUL	11	26	1520	N13 W28	11	24.5		B	CSO	130	4	5	3
3998	23444	MWIL	11	26	1600	N11 W30	11	24.4	5	(BP)					
3998		LEAR	11	27	0012	N12 W35	11	24.4		B	CSO	150	3	7	3
3998		MANI	11	27	0205	N11 W35	11	24.5			CSO	190	4	3	3
3998	23444	MWIL	11	27	1545	N11 W43	11	24.4	6	(BP)					
3998		HOLL	11	27	1818	N11 W46	11	24.3		A	HSX	150	1	2	4
3998		LEAR	11	28	0018	N11 W48	11	24.4		A	HSX	210	1	2	3

REGIONS OF SUNSPOT ACTIVITY
(ORDERED BY CENTRAL MERIDIAN PASSAGE DATE)

NOVEMBER 1982

NOAA/ USAF Region	Mt Wilson Region	Sta	Observation Time Mo	Day	(UT)	Lat	CMD	CMP Mo	Day	Max H	Mag Class	Spot Class	Corrected Area (10^{-6} Hemi)	Spot Count	Long. Extent (Deg)	Qual
3998		RAMY	11	28	1400	N12	W57	11	24.3		B	CAO	220	2	2	2
3998		HOLL	11	28	1427	N11	W57	11	24.3		A	HSX	120	1	2	2
3998		BOUL	11	28	1600	N12	W58	11	24.3		A	HX	110	1	2	1
3998		MANI	11	28	2323	N11	W61	11	24.4			HSX	190	1	2	3
3998		MANI	11	29	0001	N11	W61	11	24.4		A	HSX	190	1	2	3
3998		LEAR	11	29	0021	N11	W62	11	24.3		A	HSX	120	1	2	3
3998		RAMY	11	29	1415	N12	W69	11	24.4		A	HAX	110	1	2	2
3998		BOUL	11	29	1530	N10	W70	11	24.4		A	HSX	120	1	2	2
3998		HOLL	11	29	1550	N11	W70	11	24.4		A	HSX	100	1	2	3
3998		MANI	11	29	2348	N11	W75	11	24.3			HSX	200	1	2	2
3998		LEAR	11	30	0110	N11	W76	11	24.3		A	HSX	60	1	2	3
3998		HOLL	11	30	1715	N10	W85	11	24.3		A	HSX	110	1	1	3
0010	23450	MWIL	11	27	1545	S12	W20	11	26.1	3	(AP)					
4000		HOLL	11	20	1453	S20	E80	11	26.7		B	CSO	30	2	3	3
4000		BOUL	11	20	1655	S23	E77	11	26.6		B	DSI	30	4	5	2
4000		LEAR	11	21	0028	S24	E77	11	27.0		B	DAO	80	10	7	3
4000		BOUL	11	21	1600	S25	E66	11	26.8		B	BXO	10	3	7	1
4000		HOLL	11	21	1715	S23	E68	11	27.0		B	DSO	60	4	7	2
4000	23447	MWIL	11	21	1945	S25	E68	11	27.1	2	B					
4000		MANI	11	21	2321	S23	E64	11	26.9			CRO	60	9	8	3
4000		LEAR	11	22	0011	S22	E64	11	26.9		B	DAO	70	10	9	3
4000		RAMY	11	22	1300	S15	E55	11	26.7		B	BXO	20	8	7	3
4000		HOLL	11	22	1540	S24	E53	11	26.7		B	BXO	30	11	6	2
4000		BOUL	11	22	1545	S25	E50	11	26.5		B	BXO	20	6	7	2
4000		LEAR	11	23	0052	S24	E48	11	26.7		B	BXO	30	12	7	3
4000	23447	MWIL	11	23	1800	S23	E37	11	26.6	3	B					
4000		LEAR	11	24	0032	S24	E35	11	26.7		B	BXO	10	5	5	3
4000		RAMY	11	24	1350	S22	E27	11	26.7		B	BXO	50	9	4	3
4000		BOUL	11	24	1540	S22	E27	11	26.7		B	BXI	20	10	7	2
4000	23447	MWIL	11	24	1700	S23	E27	11	26.8	3	(B)					
4000		MANI	11	24	2338	S23	E21	11	26.6			DSO	60	8	7	2
4000		LEAR	11	25	0035	S23	E21	11	26.6		B	DRO	30	6	4	3
4000		RAMY	11	25	1522	S22	E12	11	26.6		B	CSO	80	10	7	2
4000		BOUL	11	25	1630	S21	E11	11	26.5		B	CRI	40	13	5	2
4000	23447	MWIL	11	25	1630	S23	E13	11	26.7	4	(B)					
4000		LEAR	11	26	0125	S23	E08	11	26.7		B	DRO	50	17	6	3
4000		RAMY	11	26	1350	S24	E04	11	26.9		BD	DAO	100	29	6	3
4000		BOUL	11	26	1520	S21	W00	11	26.6		B	DSO	60	15	5	3
4000	23447	MWIL	11	26	1600	S22	E02	11	26.8	4	(B)					
4000		LEAR	11	27	0012	S23	W03	11	26.8		B	DRO	30	18	6	3
4000		MANI	11	27	0205	S23	W03	11	26.9			DAO	70	18	7	3
4000	23447	MWIL	11	27	1545	S23	W11	11	26.8	5	(B)					
4000		HOLL	11	27	1818	S23	W12	11	26.8		B	CSO	40	12	4	4
4000		LEAR	11	28	0018	S23	W15	11	26.9		B	DAO	40	10	5	3
4000		RAMY	11	28	1400	S24	W24	11	26.7		B	BXO	20	7	6	2
4000		HOLL	11	28	1427	S24	W22	11	26.9		B	BXO	20	5	4	2
4000		LEAR	11	29	0021	S24	W29	11	26.8		B	BXO	10	5	4	3
4000		HOLL	11	30	1715	S24	W53	11	26.6		A	AXX		1		3
4000		LEAR	12	02	0031	S23	W70	11	26.6		A	AXX		2	1	3
4011		LEAR	11	28	0018	N16	W19	11	26.6		B	BXO	10	3	3	3
4011		RAMY	11	28	1400	N14	W26	11	26.6		B	BXO	10	3	3	2
4011		LEAR	12	01	0210	N16	W58	11	26.7		A	AXX		1		3
4011		RAMY	12	01	1320	N17	W65	11	26.6		B	CSO	20	3	5	4
4011	23455	MWIL	12	01	1600	N16	W65	11	26.7	3	(B)					
4011		LEAR	12	02	0031	N16	W71	11	26.6		B	CSO	10	2	3	3
4009	23451	MWIL	11	27	1545	S27	W04	11	27.3	3	(AF)					
4009		HOLL	11	27	1818	S28	W05	11	27.4		A	AXX		1		4
4009		RAMY	11	28	1400	S28	W17	11	27.3		A	AXX	10	3	1	2
0011	23452	MWIL	11	27	1545	S10	E19	11	29.1	3	(AP)					
0012	23456	MWIL	12	01	1600	S17	W12	11	30.8	2	(B)					
0012	23456	MWIL	12	02	1600	S17	W25	11	30.8	2	(AF)					

SUDDEN IONOSPHERIC DISTURBANCES

November 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Known Flare	NOAA/SESC Region
01	0333	0349	0625	2	3	1		1	1		0329	X-ray
01	1535	1547	1615	2	1					1	*	
01	2008	2015	2030	1	3					3	2006	3961
02	0012	0018	0106	1-	3		1	1	1	1	0011	No data
02	0202	0213	0310	1-	3			1	1	1	0212E	No data
02	0524	0528	0555	1-	3			1	1	1	0522	3966
02	0912	0916	0925	1-	3	1			1	3	0912	X-ray
02	1627	1634	1700	1-	3	1			1	8	1630	3961
02	1709	1732	1855	3	3					2	1727	3966
02	1729	1738	1905	1-	3			1		6	1727	3966
02	2200	2216	2320	1-	3			1		2	2159	X-ray
03	0051	0055	0153	1-	3			1		1	0047	X-ray
03	0349	0354	0516	1-	3			1	1	1	0350	No data
03	0917	0931	0945	1-	3				1	3	0907	X-ray
03	2220	2227	2229	1-	1	1					NF	
04	0244	0246	0254U	1-	3			1	1		0240	X-ray
04	0510	0515	0541	1-	3	1		1	1		0508	X-ray
04	0544	0548	0553	1-	3			1	1	1	0543	X-ray
04	1120	1142	1156	1	3		2				*	
04	1435	1441	1535	1-	3			1		3	*	
05	1011	1015	1026U	1	1		1				NF	
06	0928	0937	1018	1	1		1				0934	X-ray
08	0004	0015	0029	1-	1			1			NF	
08	0034	0046	0134	1-	3			1	1		0030	X-ray
08	0231	0234	0246	1-	3			1	1		NF	
08	0646	0650	0710	1-	1				1		0644	X-ray
08	1006	1019	1045	1	3					5	1000	X-ray
08	1035		1100	1	1			1			*	
08	1135	1138	1155	1-	3			1		1	1134	X-ray
08	1207	1212	1230	1-	5	1	3		1	3	1204	X-ray
08	1358	1406	1452	1+	3		2				NF	
08	1531	1538	1555	1-	3					6	1529	X-ray
08	1841	1850	1918	2	3	1				3	1836	X-ray
08	2017	2019	2030	1-	1					1	*	
08	2156	2215	2254	1-	1			1			2149	X-ray
08	2255	2258	2324	1-	1			1			NF	
09	0023	0145	0440	2	1			1			NF	
09	0047	0147	0330	1+	3	1		1	1	4	NF	
09	0744	0804	0845	2	1					1	*	
09	1857	1902	1915	1-	1					1	1845	X-ray
09	2259	2303	2330	1-	1					1	NF	
09	2319	2326	2348	1-	1			1			2315	X-ray
10	0022	0029	0153	1-	3			1	1	1	0016	X-ray
10	0220	0235	0330	1	3			1	1	1	0220	X-ray
10	0353	0407	0440	1-	3			1	1	3	0359	3987
10	0602	0608	0630	1-	3	1			1	2	0602	3987
10	0803	0805	0820	1-	1					1	NF	
10	0901	0926	1000	1	3					2	0901	3987
10	0925	0929	0945U	1	1		1				0901	3987
10	1023	1033U	1054U	1	1		1				*	
10	1116	1123	1133	1	1		1				*	
10	1159	1211	1224	1	1		1				*	
10	1759	1808	1945	2	5	3		1		14	1758	3990
10	2330	2333	0000	1-	1					1	NF	
11	0217	0231	0357	1-	3	1		1	1	1	0220E	No data
11	0326	0330	0350	1-	1				1		NF	
11	0913	0927	0958	2	1		1				NF	

SUDDEN IONOSPHERIC DISTURBANCES

November 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Known Flare	NOAA/SESC Region
11	1020	1023	1035	1-	1					1	1019	X-ray
11	1525	1531	1537	1-	1					1	1526	X-ray
11	1601	1603	1630	1+	1					1	1602	X-ray
11	2234	2258	0053	1	3			1		6	2239E	3987
12	0130	0140	0200	1-	3			1	1	1	0132	3987
12	0353	0406	0530	1	5	1		1	1	6	0331	No data
12	0536	0553	0720	1-	3				1	3	0528	3987
12	0828	0830	0835	1	3		1			1	0818	3987
12	0902	0912	0940	1+	5	3			1	5	0902	No data
12	1126	1156	1242	1	1		1				NF	
12	1248	1258	1320	1	1		1				NF	
12	1318	1322	1335	1-	3			1		2	NF	
12	1420	1435	1455	3	5	1		1		11	1425	3991
12	1432	1441	1454	2	3	3	3				1425	3991
12	1710	1712	1743	1+	3					2	1659	3990
12	2138	2150	2210	1-	1			1			2146	3987
12	2325	2330	2340	1-	1			1			NF	
13	0006	0013	0040	1-	3	2		1	1	6	NF	
13	0237	0247	0340D	1+	3	1		1	1	6	0240E	No data
13	0313	0316	0335	1-	3				1	4	0309	No data
13	0340E	0346	0441	1+	3			1	1	4	0331	X-ray
13	0450	0453	0510	1-	3			1	1	4	0449	3987
13	0601	0616	0742	1	3	1	1	1	1	5	0600E	No data
13	0656	0713	0806U	1+	1				1		NF	
13	0943	0945	1000	1	1					1	0942	3987
13	1415	1418	1430	1-	3		1		1	9	1414	3987
13	1435	1451	1645	2	3	1		1	1	8	1436	3987
13	2351	0113	0229	2+	1			1			2358	3987
14	0006	0034	0342	2+	1			1			0007	3987
14	0016	0030	0140	1-	3	2		1	1	5	0020	3987
14	1534	1545	1600	2	1			1			1526	3987
14	2358	0037	0304	2	1			1			*	
15	0157	0206	0524	2+	3	3		1	1	2	0159	No data
15	0948	1020	1120	1+	3		2				NF	
15	1614	1621	1740	1+	3	2				10	1606	3987
15	1835	1837	1900	1-	3					7	1834	3987
15	2002	2007	2020	1-	3					7	2001	No data
15	2344	2348	0021	1-	1			1			2344	3987
16	0313	0414	0531	2	3			1	1	5	0314E	No data
16	0346	0356	0436D	1	3	1			1	4	0345	No data
16	1417	1419	1425	1-	3			1		1	1417	3987
16	1708	1709	1721	1-	1					1	1710	3987
16	2040	2050	2111	1	3	1				4	2041E	3987
16	2115	2123	2200	2+	5	1		1		9	2041E	3987
16	2136	2139	2146	1	3	1				1	*	
16	2323	2334	0104	1	3	1		1		5	2323	X-ray
17	0123	0137	0218	1-	3			1	1	1	0124	X-ray
17	0257	0309	0330	1-	3			1	1		0307	3987
17	0331	0339	0413	1-	3			1	1	1	0333	3987
17	0420	0431	0520	1-	3			1	1	2	0422	3987
17	1040	1047	1135	1	3	1	2		1	5	1036	X-ray
17	1202	1217	1306	1	3		2			1	*	
17	1357	1413	1610	2+	5	2	4	1	1	10	1357	3987
18	0021	0028	0121	1-	3			1		1	0017	X-ray
18	0124	0130	0210	1-	3			1	1		0124	3995
18	0301	0308	0424	1-	3			1	1	1	0301	3987
18	0456	0509	0630	1+	3	1		1	1	5	0455	3994
18	1350	1353	1440	1-	3			1		4	1343	X-ray
18	1410	1418	1530	1-	3	1		1		1	1411E	3994

SUDDEN IONOSPHERIC DISTURBANCES

November 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Known Flare	NOAA/SESC Region
18	2113	2129	2204	1-	1			1		4	2115	3994
19	0124	0133	0149D	1-	3			1	1		0118	X-ray
19	0153E	0211	0246D	1-	3			1	1	1	0150	X-ray
19	0244E	0315	0452	1-	3			1		1	0251	X-ray
19	0454	0501	0524	1-	1			1			0455	3987
19	0729	0737	0820	1-	3			1	1	4	0729E	3994
19	0931	0938	0955	1	3				1	4	0931	3987
19	1351	1352	1400	1-	1					1	1350	3998
19	1548	1550	1610	1-	3			1		1	1535	3987
19	1756	1757	1801	1-	3					2	1753	3994
19	2124	2138	2221	1-	3			1		1	2116	X-ray
19	2250	2257	2314	1-	1			1			2240	3994
20	0021	0036	0126	1-	3			1	1	1	0022	X-ray
20	0204	0222	0443	2	3	1	1	1	1	5	0201	X-ray
20	0527	0536	0805	2	5	1	1	1	1	5	0526	4000
20	1009	1015	1030	1+	5	3	3		1	3	1007	X-ray
20	1430	1437	1545	1-	3			1		1	1428	X-ray
20	1704	1713	1823	1-	5			1		14	1655	No data
20	1846	1902	1930	1-	3			1		7	1902	4001
20	2007	2014	2030	1	3					7	NF	
20	2057	2102	2134	1-	3			1		2	2054	3997
20	2222	2238	0114	1	3			1		1	2244E	3994
21	0045	0047	0100	1-	1					1	0041	3994
21	0115	0120	0135	1-	3			1	1	1	*	
21	0136	0140	0200	1-	3			1	1	1	*	
21	0203	0210	0240	1-	3			1	1	1	0201	3994
21	0253	0257	0321	1-	3			1	1	1	*	
21	0330	0357	0420D	1-	3			1	1		0339	3987
21	0422	0424	0451	1-	3			1	1		0422	3994
21	0451	0457	0510	1-	3			1	1	1	0449	4000
21	0604	0640	0830	2	3			1	1	1	0605	3994
21	0902	0903	0910	1-	3					2	*	
21	1020	1025	1035	2	3	2	4		1	5	1018	No data
21	1124	1140	1155	1	3	2				2	1121	No data
21	1150	1153	1215	1	1					1	1154	4001
21	1307	1310	1335	1+	5	1	4	1	1	8	NF	
21	1415	1424	1625	2+	5	3	4	1	1	12	1414	X-ray
21	1438	1450	1500	1-	3					3	1443	4001
21	1630	1638	1725	1-	3			1		1	1628	3994
21	1743	1747	1830	1-	3			1		7	1741	3994
21	1842	1848	1910	1-	5			1		14	1840	4001
21	1941	1947	2115	1-	3			1		8	1941	3994
21	2134	2143	2314	1-	3			1		6	2131	X-ray
21	2319	2324	2344	1-	3			1			2318	No data
22	0015	0022	0104	1-	3			1	1		0012	4001
22	0129	0137	0210	1-	3			1	1		0121	4001
22	0431	0434	0454U	1-	1				1		0431	X-ray
22	0545	0547	0555U	1-	1				1		0541	X-ray
22	0724	0726	0804U	1-	3				1	1	0702	X-ray
22	0930	0933	0950	1-	1					1	0933	X-ray
22	1017	1024	1045	1-	3	2			1	3	1010	X-ray
22	1140	1148	1200	1-	3			1	1	4	1141	No data
22	1222	1229	1250	1-	3	2	3		1	3	1224	3994
22	1328	1332	1340	1-	1					1	1328	X-ray
22	1503	1515	1535	1-	3					5	1454	3994
22	1658	1709	1738	1	3	1				9	*	
22	1742	1743	1914	2	3	2				12	1741	X-ray
22	1757	1828	2000	2	3					5	1741	X-ray
22	2152E	2201	2300	1	3			1		5	*	
22	2300	2310	2341	1-	3			1		1	*	
22	2343	2352	0112	1+	3	1		1		5	2343	X-ray

SUDDEN IONOSPHERIC DISTURBANCES

November 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Known Flare	NOAA/SESC Region
23	0125	0135	0228	1-	3	1		1	1	1	0128	No data
23	0221	0226	0316	1-	3	1		1	1	5	0221	No data
23	0317	0322	0425	1-	3			1	1	5	0317	No data
23	0332	0336	0357D	1-	3				1	1	NF	
23	0407	0409	0420	1-	3	1			1	1	NF	
23	0427	0430	0450	1-	3			1	1	1	NF	
23	0629	0632	0656	1-	3				1	1	0628	X-ray
23	0714	0718	0750	1-	3				1	2	0710E	No data
23	0805	0808	0820	1-	3				1	2	0806	X-ray
23	0920	0924	0935	1-	3				1	3	0919	X-ray
23	0947	0952	1010	1-	3				1	1	*	
23	1115	1119	1133	1-	3		2	1		4	1116	X-ray
23	1221	1225	1235	1-	3			1	1	3	1221	X-ray
23	1309	1311		1-	3			1		3	*	
23	1346	1349		1-	3			1	1	5	1344	X-ray
23	1445	1447	1510	1-	3			1	1	2	*	
23	1538	1541		1-	3			1		1	*	
23	1608	1614	1715	1-	3	1		1		1	*	
23	1650	1715	1745	1+	3	1				1	*	
23	1857	1915	2000	1+	3	2					1856	X-ray
23	1945	1948	2015	1-	3					3	1940	X-ray
24	0000	0003	0100	1-	3			1	1		NF	
24	0230	0236	0250	1-	3				1	1	0227	3994
24	0444	0449	0530	1-	3			1	1	2	0444	3994
24	0706	0712	0720	1-	3				1	1	0705	X-ray
24	1449	1509	1600	1	3			1		5	*	
24	1540	1547	1645	1-	3			1		1	1539	X-ray
24	1945	1949	1957U	1	3	2				7	1942	X-ray
24	2126	2133	2236	2	3			1		6	2126	X-ray
24	2253	2305	0006	1-	3			1		2	2304	3994
25	0016	0023	0115	1-	3	1		1		1	0020	3994
25	0124	0128	0250	1	3	1		1	1	3	0125	3994
25	0412	0418	0545	2+	5	1		1	1	5	0415	3994
25	0505	0505	0515	1-	1					1	0515	3994
25	0605	0610	0624	1-	1				1		0605	X-ray
25	0631	0635	0704	1-	3				1	1	0629	X-ray
25	0809	0815	0825	2+	3	1	1	1	1	2	0806	X-ray
25	1114		1121	1-	1			1			1112	X-ray
25	1220	1222	1230	1-	1					1	1220	X-ray
25	1745	1747	1805	1-	3					2	1745	X-ray
25	1820	1822	1833	1-	1					1	1819	X-ray
25	2340	2350	0015	1-	1			1			2339	X-ray
26	0015	0025	0108	1-	1			1			0012	X-ray
26	0110	0114	0144	1-	1			1			0107	X-ray
26	0218	0223	0718U	3+	3			1	1	1	0214E	No data
26	0235	0254	0300	2	3	2				3	0232	3994
26	1242	1247	1300	1-	3		1		1	2	NF	
26	1355	1400	1415	1-	3					3	1356	X-ray
26	1506	1509	1612	2	3					5	1505	X-ray
26	1614	1615	1710	1	3	1				5	1608	X-ray
26	1800	1802	1840	1+	3					2	1758	X-ray
26	1941	1947	2018	1-	3	2		1		4	1926	X-ray
27	0304	0307	0325	1-	3			1	1		NF	
27	0452	0457	0549	1-	3			1	1		0448	X-ray
27	1551	1600	1615	1-	3					2	*	
27	1830	1845	1915	1	3					2	*	
27	2037	2057	2145	1-	1			1			*	
27	2334	2356	0054	1-	1			1			*	
28	0104	0110	0136	1-	1			1			NF	
28	0146	0156	0233	1-	3			1		1	0146	X-ray
28	0318	0328	0353	1-	1			1			0317	4007

SUDDEN IONOSPHERIC DISTURBANCES

November 1982

Day	Start (UT)	Max (UT)	End (UT)	Imp	Wide-spread Index	Number of Station Reports by Type SWF	SEA	SPA	LF-SPA	SES	Known Flare	NOAA/SESC Region
28	0403	0414	0515	1	3			1	1	4	0402	4007
28	0522	0530	0640	1	3	1		1	1	3	0528E	4007
28	1233	1241	1257	1	1		1				1235	X-ray
28	1645	1656	1725	1-	3					2	1639	3998
28	2001	2012	2024	1-	3			1		1	1957	X-ray
28	2306	2309	0007	1-	1			1			2306	4007
29	0009	0015	0034	1-	1			1			0009	X-ray
29	0034	0037	0100	1-	1			1			0032	X-ray
29	0136	0140	0159	1-	3			1	1		0134	X-ray
29	0200	0216	0250	1-	3			1	1		0200	4007
29	1128	1140	1204	!	3					3	*	
29	1632	1715	1815	2	3					5	NF	
29	1745	1750	1824	1	3					2	1739	X-ray
29	2015	2021	2100	1-	3					3	*	
29	2036	2042	2115	1-	3					2	*	
29	2101	2110	2132	1-	3	1		1		1	2102	X-ray
29	2136	2143	2251	1-	5	1		1		7	2134	X-ray
29	2308	2342	0115	1-	1			1			2306	X-ray
30	0236	0240	0256	1-	3			1	1		NF	
30	0409	0416	0519	1-	3	1		1	1	1	0412	4005
30	0738	0748	0830	1-	3			1	1	1	0738	X-ray
30	0839	0848	1004	1-	3			1	1	2	0837	X-ray
30	1052	1113	1142	1	1		1				*	
30	1201	1205	1230	1-	1					1	*	
30	1430	1437	1507	1	1		1				NF	
30	2324	2330	2350	1-	1					1	2324	4005

* = No Flare Patrol
NF = No Flare Reported
X-ray = Event observed only at X-ray wavelengths

OBSERVATORIES REPORTING FOR NOVEMBER 1982*

Ayrshire, Scotland (AY)	SES	Maui, Hawaii, USA (MI)	SWF
Darmstadt, GFR (DA)	SWF	Mayfield Village, Ohio, USA (A28)	SES
Edenvale, South Africa (A52)	SES	Missoula, Montana, USA (A31)	SES, SWF
Farsta, Sweden (FS)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF
Frenchtown, Montana, USA (A56)	SES	Paterson, New Jersey, USA (A46)	SES
Glenorchy, Tasmania, Australia (GH)	SES	Portage, Michigan, USA (A51)	SES
Hiraiso, Japan (HI)	SWF	Roswell, New Mexico, USA (RW)	SES
Hobart, Tasmania, Australia (TA)	SEA	San Antonio, Texas, USA (SA)	SES
Houston, Texas, USA (A50)	SES	Sao Paulo, Brazil (UM)	SES, SPA
Huancayo, Peru (HU)	SWF	Sofia, Bulgaria (SF)	SES
Inubo, Japan (IN)	SPA	St. Cloud, Minnesota, USA (SC)	SES
Juliusruh, GDR (JU)	SWF	Tavares, Florida, USA (A49)	SES
Kuhlungsborn, GDR (KU)	SPA, SEA	Trenton, New Jersey, (NJ) USA	SES
Lake Hiawatha, New Jersey, USA (A32)	SES	Tucson, Arizona, USA (A09)	SES
Latrobe, Pennsylvania, USA (A19)	SES	Upice, Czechoslovakia (UI)	SEA
Lintong, China (LT)	SPA	Valley Cottage, New York, USA (A01)	SES
Louisville, Kentucky, USA (A26)	SES	Walla Walla, Washington, USA (A55)	SES

*Observations are not necessarily continuous for each reporting station.

SIDs by NOAA/SESC REGION

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Region Number																														
3961	1	1																												
3966		3																												
3987										4	1	4	5	3	3	4	4	1	3		1									
3990										1		1																		
3991												2																		
3994																		3	3	1	7	2		3	4	1				
3995																		1												
3997																				1										
3998																			1									1		
4000																				1	1									
4001																				1	3	2								
4005																													1	2
4007																												4		
X-Ray	1	2	2	3		1		8	2	2	3		1		1	1	2	?	4	4	2	9	8	4	8	7	1	3	7	2
No Reported Flares			1		1			4	3	2	2	4	2							1	1		3	1		1	1	1	1	2
No Flare Patrol	1			2				2	1	3				1		1	1				4	3	6	1			4		3	2
No Data		2	1								1	2	3		2	2				1	3	1	4			1				
Event Totals	3	8	4	5	1	1		14	6	12	7	13	11	4	6	8	7	7	11	10	22	17	21	9	12	10	6	9	12	8

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
01	0000	0328	CULG	0011.5	0031.0	1							IN
			CULG	0309.0	0326.0	1							IN
	0431	0715	CULG	0439.0	0440.5	1							DCIM,N
	0649	1527	WEIS										
			HARV				1337.0	1338.0	2				IIIG
			HARV				1516.0		2				IIIB
			HARV				2015.0		2				IIIG
	2016	2400	CULG	2018.0	2057.5	1							IN
			CULG				2056.0	2057.0	1				IIIG
			CULG				2229.0	2230.0	2	2229.0	2230.0	1	IIIG
			HARV	2242.0	2335.0	1							INW
			HARV	2253.0		2							IIIG
			CULG				2258.0	2259.0	1	2258.0	2250.5	1	IIIG
			HARV				2312.0	2332.0	2				I
			CULG				2333.0	2334.0	3	2333.5	2334.0	2	IIIG
			HARV				2333.0		1				IIIGW
			CULG				2338.5	2339.0	2	2339.0		1	IIIB
02	0000	0715	CULG				0008.5	0009.0	2	0008.5	0009.0	1	IIIG
			CULG				0009.0	0010.0	1				IIIG
			CULG	0223.0	0715.0	1	0247.0	0426.5	1				IS
	0615	1500	BLEN										
	0657	1525	WEIS										
			CULG				0659.0	0659.5	1				IIIG
	1326	2350	HARV	1513.0	2320.0	1							INW
			HARV				1938.0	1940.0	2	1938.0	1939.0	2	IIIG
			PALE				1938.1	1939.6	1				III
	2016	2400	CULG	2118.5	2400.0	1							IS
			CULG				2237.0	2237.5	3				IIIB
			HARV				2237.0		2				IIIB
			CULG				2244.0	2247.5	1				IIIN
			CULG				2247.0		2				IIIB
			HARV				2247.0		2				IIIG
03	0000	0715	CULG	0000.0	0625.0	1							IS
			CULG				0102.5	0119.5	1	0113.0	0114.5	1	IIIN
			CULG				0113.5		2				IIIB
			CULG				0118.5	0119.0	2	0119.0	0120.0	2	IIIG
			CULG				0311.5		1				IIIB
			LEAR				0316.8	0317.6	1				III
			CULG				0317.0	0318.0	2	0317.0	0318.0	2	IIIG
			LEAR				0413.1	0414.1	1				III
			CULG				0413.5		2	0413.5		1	IIIB
			CULG				0507.5	0508.0	2				IIIG
			LEAR				0507.8	0508.0	1				III
	0615	1500	BLEN										
	0648	0746	WEIS										
	0753	1523	WEIS										
	1326	2350	HARV				1532.0		1				IIIG,UW
			HARV				1734.0	1735.0	3				IIIG,U
			HARV	1736.0	2242.0	1							INW
			LEAR				2338.1	2341.1	1				III
	2016	2400	CULG				2338.5	2341.0	1	2338.5	2340.5	1	IIIN
			HARV				2340.0	2341.0	1				IIIGW
			CULG				2340.5	2341.0	2				IIIG,U
04			LEAR				0116.8	0117.1	1				III
	0000	0715	CULG				0117.0		2	0117.5		1	IIIB
			CULG				0220.5		1				IIIB
			CULG				0334.0	0334.5	3	0334.5	0335.0	2	IIIG
			CULG				0334.0	0335.0	1				IIIG,U
			LEAR				0334.3	0334.6	1				III
			CULG	0538.5		1	0538.5		3				IIIG,U
			LEAR				0538.5	0546.3	2				III
			CULG				0539.5	0541.5	2				IIIN
			CULG	0542.5	0543.0	1	0542.5	0544.0	3	0542.5	0544.0	2	IIIG,U,V
			CULG				0546.0		3				IIIB
	0615	1500	BLEN										
	0648	1523	WEIS										
	1327	2340	HARV				1608.0	1609.0	2	1608.0	1609.0	1	IIIG
			HARV				1737.0		2				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

NOVEMBER 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
04	2016	2400	CULG										
			HARV				2044.0	2214.0	1				IN
05	0000	0715	CULG				0625.5	0628.5	1				IIIG
			LEAR				0626.1	0629.1	1				III
	0650	0723	WEIS										
			CULG				0710.5	0712.0	1				IIIG
			LEAR				0710.6	0711.6	1				III
	0615	1500	BLEN				0911.4	0911.6	2				IIIG
	1436	1519	WEIS										
	1326	2400	HARV				2100.0		1				IIIB
	2016	2400	CULG				2204.0	2205.0	1				IIIG
			HARV				2204.0	2205.0	2				IIIG
06	0000	0715	CULG	0020.5		1							IIIB
			LEAR				0408.8	0409.5	1				III
			CULG				0409.0	0409.5	3				IIIG,U
			LEAR				0725.5	0725.8	1				III
	0653	1518	WEIS				0726.4	0726.6	1				IIIB
	0615	1500	BLEN				0903.9	0910.0	2				IIIU
			WEIS	0907.2	0907.3	1							U
			WEIS	0908.9	0909.0	1							DCIM
	1331	2345	HARV				1507.0		2				IIIG
			WEIS				1507.3	1508.6	1				IIIG
			HARV				1853.0	1855.0	3	1853.0	1855.0	2	IIIG
			HARV				1910.0	2026.0	1				IN
			HARV	1922.0	1923.0	2	1922.0	1923.0	3	1922.0	1923.0	2	IIIGG,V
			PALE				1922.3	1923.1	2				III
			HARV				1930.0		1				IIIBW
			HARV	1936.0		1	1935.0	1937.0	3				IIIGG
			HARV				1955.0		2				IIIB
			HARV	2009.0		2	2009.0	2012.0	2				IIIGG
			HARV				2031.0	2032.0	2				IIIG
	2016	2400	CULG				2031.5		2				IIIG
			HARV				2045.0	2046.0	2				IIIG
			CULG				2045.5	2046.0	3				IIIG
07	0000	0715	CULG				0006.0	0145.0					IS,W,C
			LEAR				0052.8	0053.3	1				III
			LEAR				0120.8	0206.0	1				CONT
	0615	1010	BLEN										
	0654	1419	WEIS										
	1335	2340	HARV				1803.0		1				IIIBW
			HARV				1828.0		1				IIIB
			HARV				1856.0	1857.0	2	1856.0	1857.0	2	IIIG
	2017	2400	CULG	2121.5	2347.0	1							IN
08	0000	0715	CULG	0036.0	0050.5	1							IN
			CULG	0124.5	0125.0	2							DCIM
			CULG	0407.0		1							IIIB
			CULG	0445.5	0446.0	1	0445.5	0446.0	1				IIIG
			CULG	0449.5	0450.5	1							DCIM
			CULG	0450.0		2	0450.0		2				IIIG
	0820	1500	BLEN	1213.6	1213.7	2							III,RS
	1332	2340	HARV				1339.0	1525.0	1				IN
	1417	1515	WEIS										
			HARV	1621.0	2325.0	1							INW
			HARV				1713.0	2331.0	1				IN
			HARV	1714.0	1715.0	1							IIIG
			HARV				1837.0		1				IIIGW
			HARV				1845.0	1846.0	1	1845.0	1846.0	1	IIIGW
			HARV				1937.0	1938.0	2				IIIG
	2016	2400	CULG	2016.0	2131.0	1							IS
			CULG	2235.0	2400.0	1	2222.0	2320.0	1				IS,C
			LEAR				2235.0	2327.0	1				CONT
09	0000	0716	CULG	0000.0	0021.0	1							IS
			CULG							0055.0	0149.0		SWF,W
			CULG	0108.0	0407.0	1	0122.0	0303.0	2				IS,C,DC
			CULG				0125.0	0203.0					IIIS,W
			CULG				0131.0	0138.5	2	0131.0	0138.5	1	IIIN

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09			CULG				0143.0	0155.0	1				POSS II
			CULG				0303.0	0655.0	1				IN
	0615	1500	BLEN										
			LEAR				0802.1	0802.3	1				III
	0745	1339	WEIS				0918.0	1245.0	2				IN
	1342	2340	HARV				1641.0	1643.0	1				IIIGW
			HARV				1648.0	2332.0	1				INW
			HARV	1657.0	1928.0	1							INW
			HARV	1928.0	2140.0	1							I
			HARV	2001.0	2002.0	1							IIIG
	2016	2400	CULG	2016.0	2148.5	1							IS
			HARV	2140.0	2320.0	1							INW
10	0000	0716	CULG				0102.0		2				IIIB,U
			CULG				0249.5	0250.5	1				IIIGG
			CULG	0601.0	0602.0	2							UNCLF
			CULG	0605.0	0701.5	1							IS
	0750	1048	WEIS										
	1053	1512	WEIS	1100.0	1300.0	1							IN
	0615	1500	BLEN				1207.9	1315.0	2				I
			WEIS				1305.7	1307.8	2				IIIG
	1342	2340	HARV				1439.0	1934.0	2				IIIN
			HARV	1450.0	1452.0	1							IIIG
			HARV	1502.0	2140.0	1							INW
			HARV				1706.0	1714.0	1				IW
			HARV				1709.0	1714.0	2				IIIGG
			HARV				1714.0	1751.0	2				IC
			HARV				1721.0	1722.0	2				IIIG
			HARV				1751.0	1944.0	1				I
			HARV				1847.0		2				IIIG
			HARV				1922.0	1925.0	2				IIIGG
			HARV				1937.0	2025.0	2				IIIS
			HARV				1942.0		2	1942.0		1	IIIG
			HARV				1944.0	1959.0	2				I
			HARV				1950.0	2120.0	1				I
	2020	2400	CULG	2020.0	2240.0	1							IS
			HARV	2023.0		1	2023.0		2	2023.0		1	IIIG
			HARV				2027.0	2140.0	1				IIIN
			CULG				2059.0	2156.5					IIIS,W
			HARV	2140.0	2240.0	1							I
			HARV				2258.0	2300.0	2				IIIGG
			CULG				2258.5		2				IIIB
			CULG	2259.0	2259.5	1	2258.5	2301.0	1				IIIG
			CULG	2328.5	2400.0	1							IN
11	0000	0716	CULG	0000.0	0148.5	1							IS
			CULG				0018.0		2				IIIB,U
			CULG				0139.0	0139.5	3	0139.0	0139.5	1	IIIG
			LEAR				0139.0	0139.5	1				III
			CULG	0148.5	0716.0	1							IN
			CULG				0603.5		1				IIIB
	0703	1242	WEIS										
	0615	1450	BLEN				0804.0	1400.0	1				I,N
	1300	1511	WEIS										
	1342	2345	HARV				1342.0	1820.0	1				IN
			HARV				1531.0	2003.0	1				IIINW
			HARV	1633.0		1	1633.0		3				IIIG
			CULG	2016.0	2018.0	1							IN
	2016	2400	CULG				2016.0	2052.5					IIIS,W
			CULG				2022.0	2349.0	1				IIIN
			CULG				2032.0	2036.0	1				IS
			HARV				2136.0	2332.0	1				IN
			CULG	2235.0	2400.0	1	2341.5	2400.0	1				IS
12	0000	0715	CULG	0000.0	0559.5	1	0000.0	0215.0	1				IS,DC
			CULG				0012.5	0115.0					IIIS,W
			LEAR				0019.0	0100.0	1				CONT
			CULG				0132.5	0134.5	2				IIIGG
			LEAR				0132.8	0133.3	1				III
			LEAR				0133.3	0536.3	1				CONT
			CULG				0159.5	0201.0	3				IIIG

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12			CULG				0213.0	0715.0	1				IIIN
			CULG				0215.0	0300.0					IIIS,W
			CULG				0215.0	0533.0	2				IS,C,DC
			CULG							0359.0	0418.0		SWF,W
			CULG	0515.5	0543.0	2							DCIM,N
			CULG				0533.0	0715.0	3				IS,C,DC
			LEAR				0536.3	0542.1	1			II	
			LEAR				0536.3	0957.0	2			IV	
			CULG				0536.5	0554.0	2				POSS II
			CULG	0546.0	0554.5	2							CONT
	0700	1510	BLEN				0700.0E	1510.0D	2				I,N
	0703	1448	WEIS				0709.0	1436.0	2				I/IIIN
			LEAR				0945.0	0946.5	1				III
			LEAR				1200.3	0045.0	5				III
	1342	2345	HARV				1343.0	1800.0	2				IC
			BLEN	1431.4	1431.4	2							DCIM
			BLEN				1434.7	1434.9	1				IIIGG
			BLEN				1446.7	1454.8	2				IIIGG
			HARV				1508.0	1509.0	3				IIIG
			HARV				1750.0	1754.0	2				UNCL
			HARV				1800.0	2333.0	1				IC
			HARV	2031.0	2032.0	1							IIIG
			HARV	2037.0		1							IIIG
			HARV	2051.0	2052.0	2							IIIG
			HARV	2126.0	2127.0	2							DCIM
			HARV	2241.0	2242.0	2							IIIG
13	0000	0716	CULG							0009.0	0014.0		SWF,W
			CULG				0034.0	0251.0					IS,W
			CULG	0037.5	0038.0	2							IIIG
			CULG	0145.0	0357.0	1							IIIN
			CULG	0211.5	0559.0	1							DCIM
			CULG	0236.0	0237.0	3	0236.0	0238.0	3				IIIG,V
			CULG	0253.0	0537.6	1							IN
			CULG				0257.0	0500.0	2				IS,C,DC
			CULG				0258.0	0259.0	2				UNCLF
			CULG				0308.5	0318.0	1				POSS II
			LEAR				0312.0	0319.0	1			II	
			LEAR				0319.0	0845.0	1			IV	
			CULG				0500.0	0716.0	1				IS,C,DC
	0735	1505	BLEN				0735.0E	1011.0	1				I
			BLEN	0813.3	0813.4	1							DCIM
			BLEN	1015.4	1015.4	2	1015.4	1015.4	2				IIIB
			BLEN	1115.8	1115.8	1	1115.8	1115.8	2				IIIB
	1137	1508	WEIS				1156.4	1156.8	1				IIIG
	1326	2345	HARV	1333.0	2015.0	1							IN
	1342	2345	HARV				1342.0	1705.0	2				I
			HARV				1657.0		2				IIIB
			HARV				1705.0	2130.0	1				IN
			HARV				1758.0	1759.0	1	1758.0		1	IIIG
	2016	2400	CULG				2016.0	2400.0					IIIS,W
			CULG				2021.5	2350.5	1				IIIN
			CULG				2022.0	2400.0	1				IS,DC
			CULG	2022.0	2400.0	1							IN
			HARV				2130.0	2333.0	2				IC
			LEAR				2231.0	1025.0	1				CONT
14			CULG				0000.0	0715.0					IIIS,W
			CULG	0000.0	0708.0	1							IN
	0000	0716	CULG				0000.0	0716.0	1				IS,C,DC
			CULG				0003.5	0716.0	1				IIIN
			CULG							0020.0	0039.0	1	SWF
			CULG				0034.5	0716.0	1				RSDP,N
			CULG				0044.5	0642.0	2				IIIN
			WEIS				0710.1	1507.0	3				IS,DC
	0705	1507	WEIS				0734.0	1507.0	2				IIIS
	0735	1505	BLEN				0755.0	1505.0D	3				I,C
	1342	2345	HARV				1342.0	2340.0	3				IC
			HARV				1429.0	2020.0	2	1611.0	2020.0	2	IIIS
			HARV	1857.0		1	1857.0	1902.0	2	1859.0	1902.0	2	IIIGG,U
			PALE				1859.8	1902.3	2				III

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14			PALE				1904.8	0323.0	2				CONT
			CULG	2016.5	2132.0	2							IIIS
	2016	2400	CULG	2016.5	2400.0	1	2016.5	2400.0	2				IS,C
			HARV				2020.0	2257.0	2	2020.0	2128.0	2	IIIN
			CULG				2027.0	2400.0	1				RSDP,N
			CULG				2132.0	2400.0	1				IIIS
			LEAR				2212.0	1026.0	1				CONT
			CULG	2214.0	2349.0	2							IIIN
			CULG				2256.5		3				IIIB
15			CULG				0000.0	0714.0	1				S,RSDP
			CULG				0000.0	0716.5					IIIS,W
			CULG				0000.0	0716.5	1				IIIN
	0000	0716	CULG	0000.0	0512.0	1	0000.0	0716.5	2				IS,C
			CULG				0003.0		3				IIIB
			CULG				0016.0	0712.5	2				IIIN
			CULG							0200.0	0215.0	2	SWF
			CULG	0202.0	0243.0	1							CONT
			CULG				0549.0		3				IIIB
			WEIS				0712.0	1310.0	2				IS,DC
	0707	1310	WEIS				0734.0	1309.0	2				IIIS
	0735	1500	BLEN	1223.3	1223.4	2							IIIG
	1342	2345	HARV				1342.0	2210.0	2				IC,DC
			HARV				1404.0	2134.0	1				IIIN
			HARV	1427.0		1							I
			HARV	1833.0	2125.0	2							IIIN
			HARV	1948.0	1949.0	2							IIIGG
			CULG	2016.5	2400.0	1							IIIS
	2016	2400	CULG				2016.5	2400.0	2				IS,C,DC
			CULG				2017.5	2302.0	2				IIIN
			CULG				2017.5	2349.0					RSDP,N
			LEAR				2209.0	1026.0	1				CONT
			HARV				2210.0	2321.0	1				IN
			CULG				2306.5		3				IIIB
16			CULG				0000.0	0716.5	1				IS,C,DC
	0000	0716	CULG				0000.0	0716.5					IIIS,W
			CULG				0003.5	0711.5	1				RSDP,N
			CULG				0004.5	0716.0	1				IIIN
			CULG				0016.5	0636.5	2	0016.5	0418.0	1	IIIN
	0710	0840	WEIS				0739.0	1500.0	1				IIIN
	0740	1135	BLEN										
	0919	1504	WEIS										
	1342	2345	HARV				1343.0	2328.0	1				I
			HARV	1615.0	1616.0	2							IIIG
			HARV				1630.0	2012.0	1	1630.0	2012.0	1	IIIN
			HARV	1917.0		1							IIIG
	2017	2400	CULG				2017.0	2210.0					IIIS,W
			CULG				2018.0	2127.0	1				IIIN
			CULG				2020.0	2341.0	1				IN
			CULG				2024.0		2				RSDP
			LEAR				2349.0	0142.0	1				CONT
17			CULG				0311.5		1				IIIB
	0000	0654	CULG				0502.0	0640.0	1				IN
	0711	1502	WEIS				0859.8	0859.9	2				DP
	1342	2340	HARV				1343.0	1813.0	1				INW
	2148	2400	CULG	2306.5		1	2306.5		1				IIIB
18	0000	0717	CULG	0058.0	0141.0	1							IIIN
			CULG	0456.0	0458.5	1							DCIM,N
			CULG				0500.5	0508.0	2				II H
			LEAR				0501.6	0503.5	1				II /
			CULG	0504.5	0506.0	1							IV
			CULG	0611.5		2							IIIG
	0713	1117	WEIS										
	1124	1521	WEIS				1154.4	1154.9	2				IIIG
	1342	2340	HARV				1355.0	1356.0	1				IIIGW
			HARV	1418.0	1419.0	1							IIIGW
			HARV				1419.0	1420.0	1				IIIGW
			HARV				1545.0	1938.0	1				INW

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18			HARV				1813.0		1				IIIB
			HARV				1828.0		2				IIIB
			HARV	1930.0	1931.0	1	1930.0		1				IIIG
			HARV				1938.0	2117.0	2				I
			HARV				2016.0	2018.0	2				IIIG
	2017	2400	CULG				2017.0	2139.0					IS
			CULG	2017.5	2018.0	1	2017.5	2018.0	2				IIIG
			CULG	2021.0		2	2021.0	2021.5	3				IIIG,U
			HARV				2021.0		2				IIIG
			CULG				2116.5		1				IIIB,V
			HARV				2117.0	2329.0	1				I
			CULG	2122.0	2123.0	1	2122.0	2123.0	1				IIIG
			HARV	2122.0	2123.0	1	2122.0		1				IIIG
			CULG				2139.0	2356.0	1				IN
19	0000	0717	CULG	0000.0	0149.0	1	0000.0	0242.5	1				IN
			CULG				0435.5	0538.0	1				IIIN
			LEAR				0516.8	0517.1	1				III
	0714	1500	WEIS				0927.0	1023.0	1				IS
			WEIS				1049.7	1050.9	1				IIIGG
			WEIS				1114.2	1123.2	2				IIIGG
	1342	2340	HARV				1534.0	2128.0	1				IIIN
			HARV	1538.0	1555.0	1							INW
			HARV				1758.0	1759.0	2	1758.0	1759.0	2	IIIG
			HARV				1902.0		2	1902.0		1	IIIG
			HARV	1921.0	2313.0	1							IN
			HARV				1957.0	1958.0	2	1957.0		2	IIIG
			PALE				1957.3	1958.0	1				V
			HARV				2010.0	2014.0	1				IIIGG
	2019	2400	CULG	2027.0	2311.0	2							IN
			HARV				2030.0	2033.0	1				IIIGG
			CULG				2030.5	2359.0	1				IIIN
			HARV				2037.0	2038.0	2	2037.0		2	IIIG
			PALE				2037.3	2037.6	1				V
			CULG				2037.5	2038.0	3				IIIG,V
			CULG	2118.0	2118.5	2	2118.0	2118.5	2				IIIG
			HARV				2118.0		2				IIIG
			HARV	2123.0		1	2123.0		1				IIIG
			HARV				2309.0	2311.0	2				IIIGG
			CULG	2315.0	2316.0	3	2315.0	2316.0	3				IIIG
			HARV				2315.0	2316.0	2				IIIGG
			HARV	2319.0		2	2319.0		1				IIIG
			LEAR				2350.6	2350.8	1				III
20	0000	0717	CULG				0110.0	0112.0	1				IIIG
			LEAR				0111.8	0112.0	1				III
	0716	1459	WEIS										
	1342	2340	HARV				1543.0	2236.0	1				INW
			HARV				1619.0	1621.0	1				IIIG
			HARV				1859.0	1900.0	2				IIIG
			HARV				1939.0		2				IIIG
			HARV				1948.0		1				IIIGW
			HARV	1955.0		1	1954.0	1955.0	2				IIIGG
	2018	2400	CULG	2020.0	2043.0	1							IN
			HARV	2038.0		1							IIIG
			CULG	2043.0	2235.0	1							IS
			HARV	2054.0	2056.0	1							IIIGW
			CULG	2235.0	2400.0	1	2236.0	2400.0	2				IS,C,DC
			CULG				2249.0	2358.5	1				IIIN
			HARV	2253.0	2329.0	2	2236.0	2341.0	2				IC
			CULG				2258.5	2300.0	3				IIIG,U
			LEAR				2258.6	2300.3	1				III
			HARV				2259.0	2300.0	2				IIIG
21	0000	0717	CULG	0000.0	0333.0	1	0000.0	0400.0	3				IS,C,DC
			PALE				0036.0	0140.0	2				CONT
			CULG				0145.5	0604.5	2				IIIN
			CULG				0234.0	0419.5	1				IIIN
			CULG	0333.0	0704.5	1							IN
			CULG				0400.0	0505.0	1				IS,C,DC
	0718	0807	WEIS				0723.8	0725.6	1				IIIG

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21			WEIS				0743.4	0748.5	2				IIIGG
			LEAR				0746.1	0747.3	1				III
			WEIS				0746.8	0748.9	1				DCIM
			LEAR				0900.3	0900.6	1				III
	0950	1458	WEIS				1010.7	1012.3	2				IIIG
			WEIS				1028.0	1032.0	1				I
	1342	2340	HARV				1354.0	2355.0	1				INW
			HARV	1632.0		1	1632.0		1				IIIG
			HARV				1655.0		2				IIIG
			HARV				1816.0		1				IIIBW
			HARV				1824.0	1827.0	1				IIIGW
			HARV	1931.0		1	1931.0		2	1931.0		2	IIIG
			PALE				1931.1	1931.6	1				V
	2018	2400	CULG	2018.0	2400.0	1							IS
			CULG				2028.0	2234.5	1				IIIN
			HARV				2028.0		2				IIIG
			HARV				2212.0		1				IIIBW
			HARV	2230.0	2231.0	1	2230.0	2231.0	2				IIIG
			LEAR				2301.0	1029.0	1				CONT
22	0000	0717	CULG	0000.0	0717.5	1							IS,DC
			LEAR				0029.3	0033.6	1				III
			CULG				0032.0	0051.0	1				IIIN
			LEAR				0048.0	0054.0	1				III
			CULG				0053.0	0054.0	2	0053.0	0056.0	2	IIIG
			LEAR				0435.1	0445.6	1				G
			CULG	0437.0		1	0437.0		3				IIIB,U
			CULG				0444.5	0445.5	2				IIIG
			LEAR				0630.0	0644.6	1				G
			CULG				0638.0	0715.0	2				IIIN
			CULG				0642.5		3				IIIB
			CULG	0717.0		3	0717.0		3				IIIG
			WEIS				0723.9	074.7	3				IIIG
	0720	1457	WEIS				0744.0	1455.0	1				IN
			WEIS				0806.1	0806.2	2				II U
			WEIS				0815.2	0816.4	3				DCIM
			WEIS				0825.6	0827.7	3				IIIGG
			LEAR				0826.8	0834.3	1				III
			WEIS				0831.7	0834.3	3				IIIGG
			WEIS				0856.6	0857.0	3				DCIM
			LEAR				0900.3	0901.1	2				III
			WEIS				0900.4	0901.0	3				IIIG
			WEIS				0915.0	0916.6	3				IIIG
			LEAR				0915.1	0915.8	1				III
			LEAR				0925.8	0928.3	2				III
			WEIS				0925.8	0928.2	3				IIIGG
			WEIS				0934.3	0937.6	3				IIIGG
			WEIS				0945.0	0946.2	2				IIIG
			WEIS				1002.6	1003.2	2				IIIG,U
			WEIS				1008.1	1009.6	2				IIIG
			WEIS				1016.4	1019.0	3				IIIGG/V
			WEIS				1019.4	1022.3	3				IIIGG/V
			WEIS				1022.7	1023.8	3				IIIGG
			WEIS				1124.1	1124.8	3				IIIG
			WEIS				1126.2	1126.6	3				IIIG
			WEIS				1128.7	1131.7	3				IIIGG
			WEIS	1131.2	1131.6	1							DCIM
			WEIS				1139.2	1141.1	3				IIIGG
			WEIS				1142.6	1144.4	3				IIIGG
			WEIS				1145.2	1148.7	3				IIIGG
			WEIS				1215.0	1215.3	2				U
			WEIS				1219.0	1227.7	3				IIIGG,DCIM
			WEIS				1257.7	1257.9	2				IIIB
			WEIS				1316.4	1317.2	2				IIIG
			WEIS				1318.2	1318.3	2				IIIG
			WEIS				1320.7	1321.7	2				IIIG
			WEIS				1325.4	1326.7	2				IIIG
			WEIS				1328.6	1329.6	2				IIIG
			WEIS				1330.7	1337.0	3				IIIGG,DCIM
	1342	2340	HARV				1345.0	1612.0	2				I
			HARV				1405.0	1418.0	2				IIIGG

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22			WEIS				1405.4	1405.8	2				IIIG,RS
			WEIS				1410.6	1411.3	2				DCIM
			WEIS				1413.1	1413.4	2				IIIG
			WEIS				1415.9	1418.3	2				IIIG
			WEIS				1425.7	1427.7	3				IIIGG
			HARV				1426.0	1430.0	3	1426.0		2	IIIGG,V
			WEIS				1429.3	1430.4	2				IIIG
			WEIS				1439.3	1445.6	3				IIIGG
			HARV	1444.0		2	1439.0	1445.0	3	1444.0	1445.0	2	IIIGG,V
			HARV				1448.0	1451.0	2				IIIGG
			WEIS				1448.0	1451.7	3				IIIG,DCIM
			HARV	1507.0	1740.0	1							IN
			HARV				1509.0	1519.0	2	1509.0	1519.0	1	IIIGG
			HARV	1533.0	1538.0	2	1533.0	1539.0	3	1538.0		1	IIIGG
			HARV				1609.0	1610.0	3				IIIG
			HARV				1612.0	2212.0	3	1800.0	1813.0	2	IC
			HARV				1621.0	1624.0	3	1623.0	1624.0	1	IIIGG
			HARV	1637.0		1	1631.0	1637.0	2				IIIGG
			HARV				1656.0	1702.0	3	1656.0	1702.0	2	IIIGG,V
			HARV				1712.0	2330.0	2	1721.0	1948.0	2	IIIN
			HARV				1737.0	1738.0	2	1737.0	1738.0	2	IIIG
			HARV	1742.0	1743.0	2	1740.0	1745.0	3	1740.0	1745.0	2	IIIGG,V
			HARV	1743.0	1915.0	2	1747.0	1915.0	3				IV
			PALE				1757.5	1941.3	2				IV
			HARV	1759.0	1815.0	2							IIIN,DCIM
			HARV				1819.0		2	1819.0		1	IIIG
			HARV				1841.0	1842.0	3	1841.0	1842.0	2	IIIG
			PALE				1841.0	1841.8	2				III
			HARV	2003.0		1							IIIGW
			PALE				2007.8	2008.1	2				III
			HARV				2008.0		3	2008.0		2	IIIB
			HARV				2016.0		2				IIIB
			CULG				2020.0	2400.0					IIIS,W
	2020	2400	CULG	2020.0	2300.0	2	2020.0	2202.0	3				IS,C,DC
			CULG				2020.5	2355.0	1				IIIN
			CULG				2103.5	2352.5	2				IIIN
			CULG	2104.0		2							IIIB
			HARV	2104.0	2105.0	2							IIIG
			CULG				2134.0	2142.0	1				IIIS
			HARV				2158.0	2201.0	3	2158.0	2201.0	2	IIIG
			CULG				2158.5	2159.5	3	2158.5	2159.0	2	IIIG,W
			PALE				2158.6	2159.3	2				V
			CULG				2200.5	2201.5	3	2200.5	2201.5	1	IIIG
			PALE				2200.8	2201.3	2				III
			HARV				2212.0	2328.0	2				I
			CULG	2244.5		1	2244.5	2245.0	3	2244.5	2245.0	2	IIIB
			PALE				2244.8	2247.3	2				III
			HARV				2245.0		2	2245.0		1	IIIG
			LEAR				2257.8	1031.0	1				CONT
			CULG	2300.0	2400.0	1	2201.0	2355.0	1				IS,C,DC
			CULG				2328.5		3				IIIB
			PALE				2328.6	2353.6	2				G
			CULG				2344.0		3	2344.0		1	IIIB
			CULG	2353.5		1	2353.0	2353.5	3	2353.5		1	IIIG
			CULG				2355.0	2400.0	2				IS,C,DC
23	0000	0718	CULG	0000.0	0718.0	1	0000.0	0246.0	1				IS,C
			CULG				0004.0	0240.0	2				DC,N
			PALE				0011.3	0032.1	2				G
			CULG	0031.0	0717.5	1	0004.0	0717.0	1	0011.5	0408.0	1	IIIN
			CULG	0058.5	0715.5	3	0031.0	0715.5	3	0153.0	0548.0	3	IIIN
			PALE				0058.8	0059.1	2				III
			CULG	0153.0	0414.0	2	0004.5	0717.5	2	0032.0	0620.5	2	IIIN
			PALE				0153.1	0153.6	2				III
			CULG				0533.0	0615.0	1				IS
			CULG				0630.0	0718.0					IIIS,W
			LEAR				0741.6	0742.0	2				III
			WEIS				0744.9	0748.0	2				DCIM
			WEIS				0745.8	0748.0	2				IIIG
			WEIS				0752.3	0752.4	2				IIIG
			LEAR				0802.6	0810.1	2				III

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23		WEIS				0802.7	0803.2	2				IIIG
		WEIS				0804.6	0807.3	3				IIIGG
		LEAR				0805.8	0807.3	3				III
		WEIS				0809.2	0812.0	3				IIIG,DCIM
		WEIS				0842.4	0842.6	2				IIIBU
		WEIS				0844.7	0845.0	2				IIIB
	0720 1441	WEIS				0853.0	1430.0	2				IS
		WEIS				0859.20	0900.30	3				IIIGG
		LEAR				0859.3	0900.3	2				III
		WEIS				0910.3	0910.6	2				IIIG
		WEIS				0942.0	1307.0	1				IIIN
		WEIS				0955.2	0955.6	2				IIIG
		WEIS				0958.8	0959.6	2				IIIG
		WEIS				1008.2	1008.6	3				IIIG
		WEIS				1014.8	1015.7	2				IIIG
		LEAR				1017.8	1018.3	2				III
		WEIS				1017.8	1019.6	3				IIIGG,DCIM
		WEIS				1026.3	1027.1	3				IIIG
		WEIS				1029.6	1029.8	3				IIIG
		WEIS				1032.7	1034.1	3				IIIG
		WEIS				1048.2	1049.3	2				IIIG
		WEIS				1051.4	1052.2	2				IIIG
		WEIS				1111.4	1112.7	3				IIIG
		WEIS				1118.2	1119.3	3				IIIGG
		WEIS				1202.4	1202.9	2				DCIM
		WEIS				1215.6	1215.8	2				IIIG
		WEIS				1219.8	1220.8	3				IIIG
		WEIS				1307.8	1308.4	2				IIIG
		WEIS				1317.6	1321.4	3				IIIGG,DCIM
		WEIS				1334.3	1337.1	3				IIIGG
		WEIS				1340.1	1341.3	3				IIIGG
		WEIS				1345.0	1348.4	3				IIIGG,DCIM
	1342 2340	HARV	1346.0	1348.0	2	1345.0	1348.0	2				IIIGG
		HARV				1348.0	1442.0	2				I
		WEIS				1348.3	1350.3	2				IIIG
		HARV	1357.0	1358.0	1	1357.0	1358.0	3				IIIG
		WEIS				1357.2	1358.6	3				IIIGG
		HARV				1403.0	1404.0	3				IIIG
		WEIS				1403.3	1404.4	3				IIIG
		HARV	1420.0	2132.0	2	1420.0	2209.0	2	1549.0	1915.0	2	IIIN
		WEIS				1420.3	1420.5	2				IIIG
		WEIS				1425.7	1426.0	3				IIIB
		WEIS				1430.9	1432.7	3				IIIG,DCIM
		HARV	1432.0		1	1432.0		3				IIIG
		WEIS				1439.7	1440.4	3				IIIG
		HARV	1440.0		2	1440.0		3				IIIG
		HARV				1442.0	2140.0	1				IN
		HARV	1453.0	1454.0	2	1453.0	1454.0	3	1453.0		2	IIIGG,V
		HARV				1505.0		2	1505.0		1	IIIG
		HARV	1512.0		2	1511.0	1512.0	3	1512.0		2	IIIGG
		HARV	1517.0	1522.0	3	1517.0	1522.0	3	1518.0		1	IIIGG,V
		HARV	1525.0	2259.0	1							INW
		HARV	1540.0		2	1540.0		3	1540.0		2	IIIG
		HARV	1607.0	1614.0	3	1609.0	1614.0	3	1610.0	1613.0	2	IIIGG
		HARV	1706.0	1707.0	3	1706.0	1708.0	3	1706.0	1707.0	2	IIIGG
		HARV	1725.0	1730.0	2	1725.0	1730.0	3	1725.0	1730.0	2	IIIGG
		PALE				1725.5	1725.6	2				III
		PALE				1732.5	2038.0	3				CONT
		HARV	1736.0	1747.0	2	1736.0	1745.0	3	1736.0	1741.0	2	IIIGG
		HARV				1756.0		2	1756.0		1	IIIG
		HARV	1842.0	1846.0	2	1842.0	1846.0	3	1843.0	1846.0	2	IIIGG
		HARV	1853.0	1856.0	3	1852.0	1854.0	3	1853.0	1854.0	2	IIIGG
		HARV	2026.0		2	2026.0		3				IIIG
	2018 2400	CULG	2026.5		2	2026.5		1				IIIB
		CULG	2027.0	2351.5	1							IN
		CULG				2027.5	2213.0	1				IIIN
		HARV				2037.0	2045.0	2				IIIGG
		HARV	2146.0	2149.0	2	2146.0	2149.0	2				IIIGG
		CULG	2146.5	2147.0	2	2146.5	2147.0	2				IIIG
		LEAR				2341.3	2341.6	1				III
		CULG				2341.5		2				IIIB

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24	0000	0718	CULG	0045.0	0136.0	1							IS
			CULG				0124.0	0629.5	1				IIIN
			CULG				0239.5	0246.5	1				II
			CULG	0247.5	0608.5	3	0247.5	0608.5	3				IIIN
			CULG	0259.0	0454.0	2	0259.0	0550.0	2				IIIN
			LEAR				0443.8	0448.1	1				III
			LEAR				0545.8	0550.3	1				III
			CULG							0546.5	0550.0	1	IIIN
			LEAR				0608.6	0609.1	1				III
	0720	1450	WEIS				0957.8	0958.1	1				IIIB
			WEIS				1056.7	1057.9	1				IIIG
			WEIS				1228.3	1228.4	2				IIIB,U,RS
	1015	1500	BLEN	1228.4	1228.5	3	1228.4	1230.8	3				III
			WEIS	1230.8	1230.9	2							IIIB
			BLEN	1241.3	1241.4	2							III
	1342	2340	HARV	1324.02			1404.0	1513.0	1				I
			BLEN	1344.7	1344.7	2	1344.7	1344.7	2				III
			HARV	1611.0	1950.0	1							INW
			HARV	1829.0		3	1829.0		2	1829.0		2	IIIG
			HARV	1924.0		1	1924.0	1925.0	3	1925.0		1	IIIG
			HARV	1939.0	1940.0	2	1939.0	1940.0	3	1939.0	1940.0	2	IIIG,V
	2019	2400	CULG	2053.5	2331.5	1							DCIM,N
			CULG				2136.0	2137.0	3	2136.0	2137.0	3	IIIG
			HARV				2136.0	2137.0	3	2136.0	2137.0	2	IIIGG
			CULG	2320.5	2343.5	1							IS
25	0000	0719	CULG	0019.5	0121.5								IS,W
			CULG				0327.0	0327.5	1	0327.0	0328.0	2	IIIB
			LEAR				0327.0	0327.6	1				III
			CULG	0358.0		2	0358.0		3				IIIG,U
			LEAR				0358.0	0358.3	1				III
			CULG	0414.0	0421.0	2							DCIM,N
			CULG							0417.0	0420.5	1	SWF
			CULG				0502.0		1				IIIB
			CULG	0525.0		1	0525.0		1				IIIG
			CULG	0631.0	0631.5	2							DCIM
			CULG				0647.5		2				IIIB
			CULG	0647.5	0653.0	1	0647.5	0654.0	1				IIIN
			LEAR				0648.8	0653.0	1				III
			CULG	0652.5	0653.0	1	0652.5	0653.0	2				IIIG
			LEAR				0728.8	0729.0	1				III
	0723	1454	WEIS				0808.4	0808.7	2				DCIM
	0740	1500	BLEN				0808.6	0808.6	2				III
			WEIS	0809.9	0810.1	1							DCIM
			LEAR				0950.8	0951.1	1				III
			WEIS				0950.9	0951.2	2				IIIB
			WEIS				1032.0	1032.3	2				IIIB
			BLEN	1209.3	1209.3	1							III
			BLEN	1221.4	1221.8	3							!IIG
			WEIS	1221.4	1221.7	2							DCIM
			BLEN	1303.9	1304.2	3	1303.9	1304.2	3				IIIG
			WEIS	1303.9	1304.2	2							DCIM
	1356	2340	HARV	1527.0	1528.0	2							IIIG
			HARV				1535.0		1				IIIB
			HARV				1545.0	1547.0	1				IW
			HARV	1624.0	1627.0	1							I
			HARV	1701.0		2							IIIG
			HARV	1823.0		1							IIIGW
			HARV	1907.0		2							IIIG
			HARV	1955.0	1956.0	2							IIIGG
	2019	2400	CULG				2054.5		1				IIIB
			HARV	2119.0		2							IIIG
			CULG	2132.0	2132.5	2							IIIG
			HARV	2132.0		2							IIIG
			HARV	2144.0	2145.0	1							I
			HARV				2210.0	2220.0	1				I
			HARV	2214.0		1							IIIBW
			CULG	2306.0	2307.0	2							DC
			HARV	2306.0	2309.0	2							I
26	0000	0719	CULG	0014.0	0033.0	1							IN

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26			CULG	0014.5	0131.0	2							DCIM,N
			CULG				0220.0	0410.0	1				IN
			CULG	0226.5	0235.0	2							IS
			CULG	0226.5	0310.0	3	0226.0	0333.5	1				IV
			LEAR				0229.0	0350.0	3				IV
			CULG				0229.5	0235.0	3	0229.5	0238.0	3	IIIGG,V
			CULG				0232.5	0233.0	3				UNCLF
			CULG				0234.0	0250.0	3				II
			CULG							0236.0	0510.0	3	SWF
			CULG	0319.0	0320.0	2	0319.0	0320.0	1				POSS II
	0725	1227	WEIS										
	0740	1500	BLEN	0844.4	0844.4	2							III
	1240	1454	WEIS				1347.5	1347.8	1				IIIG
			BLEN				1350.5	1350.6	2				III,U
			SGMR				1350.6	1350.6	1				III
			WEIS				1350.6	1350.8	3				IIIG
			WEIS				1420.7	1423.3	2				IIIG
	1357	2340	HARV				1422.0	2303.0	2				IIIN
			WEIS				1429.0	1429.1	2				IIIB
			WEIS				1432.8	1433.7	2				IIIG
			HARV				1433.0		2				IIIG
			WEIS				1434.8	1435.0	1				IIIB
			WEIS				1441.1	1441.3	2				IIIB
			HARV	1459.0		1	1459.0		2				IIIG
			HARV	1506.0	1509.0	1	1506.0	1507.0	3	1506.0	1507.0	2	IIIG
			SGMR				1506.3	1506.8	2				V
			SGMR				1515.1	1517.1	1				III
			HARV	1516.0	1519.0	1	1514.0	1519.0	3	1516.0	1519.0	2	IIIGG
			HARV				1548.0		3				IIIG
			HARV				1600.0	1601.0	2	1600.0	1601.0	1	IIIG
			SGMR				1610.8	1611.1	2				V
			HARV	1611.0	1615.0	3	1607.0	1614.0	3	1607.0	1614.0	2	IIIGG
			SGMR				1611.8	1612.1	1				V
			HARV				1620.0	1621.0	2	1620.0	1621.0	1	IIIG
			HARV				1629.0	1630.0	2	1629.0		2	IIIG
			HARV				1633.0	1634.0	3	1633.0	1634.0	2	IIIG
			SGMR				1633.3	1633.5	1				III
			HARV	1746.0	1747.0	1	1743.0	1747.0	2	1744.0		1	IIIGG
			SGMR				1758.8	1802.3	1				V
			HARV	1800.0	1804.0	2	1759.0	1805.0	3	1759.0	1804.0	2	IIIGG
			SGMR				1800.8	1802.1	1				III
			HARV				1825.0	1826.0	1	1825.0	1826.0	1	IIIG
			HARV				1835.0	1940.0	1				IN
			HARV	1858.0	1902.0	2							DCIM
			HARV				1859.0	1902.0	1	1859.0	1902.0	1	IIIGG
			SGMR				1908.6	1908.8	1				III
			HARV				1909.0		3	1909.0		2	IIIG
			HARV	1928.0	1931.0	1	1928.0	1931.0	3	1928.0	1929.0	2	IIIGG
			HARV	1942.0	1950.0	3	1942.0	1954.0	3	1942.0	1953.0	2	IIIGG,V
			SGMR				1942.5	1943.6	2				III
			SGMR				1947.5	1947.6	2				III
	2019	2400	CULG				2019.5	2338.5	2				IIIN
			HARV	2027.0	2036.0	2	2026.0	2039.0	3	2026.0	2028.0	2	IIIGG
			CULG	2027.52	2028.01	1	2026.0	2028.0	3	2027.5	2028.0	1	IIIG
			HARV				2031.0	2038.0	3	2033.0	2036.0	2	II
			CULG				2031.5	2038.5	3				II H
			CULG				2040.0	2059.5	3				II
			HARV				2040.0	2050.0	3	2042.0	2047.0	2	II
			CULG				2105.5	2106.0	3	2105.5	2106.0	1	IIIB
			HARV	2144.0	2147.0	2	2145.0	2147.0	2				IIIGG
			CULG	2146.0		1	2114.0	2358.0	1				IIIN
			HARV				2200.0	2201.0	2				IIIG
			HARV	2204.0	2205.0	2	2204.0	2205.0	2				IIIG
			CULG	2219.0	2219.5	3	2219.0	2219.5	3				IIIG
			HARV				2219.0	2220.0	3				IIIG
			HARV	2237.0	2243.0	2	2237.0	2243.0	3	2238.0		1	IIIGG
			CULG	2237.5		1	2237.5	2238.0	3	2237.5	2238.0	3	IIIG
			LEAR				2237.6	2238.0	2				III
			LEAR				2238.8	2243.8	1				III
			CULG	2242.0	2243.0	1	2241.5	2244.0	3	2241.5	2243.0	2	IIIG
			LEAR				2254.5	2255.5	1				III

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26			LEAR				2326.8	2327.1	1				III
			CULG	2327.0		1	2327.0		3				IIIG
			HARV				2327.0		3				IIIG
27	0000	0702	CULG				0031.0	0632.0	1				IIIN
			LEAR				0059.5	0102.8	2				III
			CULG				0102.0	0103.0	3	0102.0	0103.0	2	IIIG
			LEAR				0138.8	0139.3	1				III
			CULG				0152.0	0152.5	3	0152.5	0153.0	3	IIIG,U
			LEAR				0152.3	0152.6	2				III
			CULG	0235.0	0630.5	2	0139.0	0628.5	2				IIIN
			LEAR				0304.3	0305.3	1				III
			CULG	0305.0	0306.0	3	0304.0	0306.0	3				IIIG
			LEAR				0530.6	0534.1	1				III
			CULG	0531.0		1	0530.5	0531.0	3				IIIB
			LEAR				0619.5	0627.3	1				III
			CULG	0626.5	0627.5	3	0626.5	0627.5	3				IIIG
			LEAR				0740.1	0740.3	1				III
			LEAR				0759.0	0800.5	1				III
	0740	1500	BLEN				0832.6	0835.1	3				IIIG,V
	0724	1451	WEIS				0832.6	0835.9	3				IIIGG,RS
			LEAR				0832.8	0835.8	1				III
			LEAR				0910.6	0911.0	1				III
			BLEN				0910.7	0910.8	2				III
			WEIS				0910.7	0910.9	2				IIIG
			BLEN				0949.8	0949.9	2				III
			WEIS				0949.8	0949.9	2				IIIB
			WEIS				0953.3	0954.3	1				IIIG
			BLEN				1004.2	1004.7	2				IIIG
			WEIS				1004.2	1004.7	2				IIIG
			BLEN				1035.9	1038.0	2				IIIG
			WEIS				1036.0	1038.0	3				IIIG
			BLEN				1218.2	1219.1	3			II	
			WEIS				1218.3	1219.6	3				IIIG,RS
			BLEN	1219.6	1220.4	3							DCIM
			WEIS				1223.8	1224.1	1				IIIG
			WEIS				1256.5	1256.6	1				IIIB
			BLEN				1300.7	1304.9	2				IIIG
			WEIS				1300.7	1301.1	3				IIIG
			WEIS				1304.7	1305.4	2				IIIG
			BLEN				1330.2	1330.9	3				IIIG
			WEIS				1330.5	1330.9	3				IIIG
	1357	2340	HARV				1421.0		3				IIIG
			BLEN				1421.2	1421.5	2				III
			WEIS				1421.2	1421.4	1				IIIG
			HARV				1425.0	2305.0	2				IIIN
			HARV				1506.0	1516.0	3				IIIGG,U,V
			HARV				1512.0	1712.0	1				I
			SGMR				1516.3	1854.6	1				III
			HARV	1524.0	1526.0	1	1525.0	1530.0	3	1526.0		1	IIIGG
			HARV				1712.0	1850.0	3				I
			HARV				1725.0	1726.0	2	1725.0	1726.0	2	IIIG
			HARV				1750.0	1752.0	2	1750.0	1752.0	2	IIIGG
			HARV				1850.0	1930.0	2				I
			HARV				1919.0		3	1919.0		2	IIIG
			HARV				1930.0	2206.0	1				INW
			HARV				1944.0	1945.0	3	1945.0		2	IIIG
			HARV				2001.0	2002.0	2	2001.0		1	IIIG
	2023	2400	CULG				2023.5	2358.0	1				IIIN
			HARV				2102.0	2104.0	3				IIIGG
			CULG	2102.5	2103.0	3	2102.5	2104.0	3				IIIG,U
			CULG				2120.0	2358.5	2				IIIN
			CULG	2121.0	2305.5	3							IIIN
			HARV				2121.0		3				IIIB
			HARV				2128.0	2129.0	3	2128.0		1	IIIG
			HARV				2135.0		3				IIIG
			HARV				2205.0		2				IIIG
			HARV				2210.0		3				IIIG,U
			LEAR				2316.5	2317.3	1				III
			LEAR				2358.5	2358.6	1				III
28			LEAR				0001.8	0002.0	1				III

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28	0000	0720	CULG				0002.0	0637.5	2				IIIN
			LEAR				0004.8	0009.1	2				III
			CULG				0005.0	0009.5	3	0005.0	0009.5	3	IIIG
			CULG				0032.5	0631.0	1				IIIN
			LEAR				0119.6	0120.5	1				III
			LEAR				0222.8	0223.1	1				III
			LEAR				0251.1	0251.8	1				III
			LEAR				0316.8	0321.8	1				III
			CULG				0320.5	0321.5	3	0321.0	0321.5	2	IIIG
			LEAR				0327.8	0328.8	1				III
			LEAR				0521.8	0523.3	1				III
			LEAR				0529.1	0532.8	1				V
			LEAR				0630.0	0630.5	1				III
			LEAR				0658.3	0658.6	1				III
			CULG				0658.5		3				IIIB
			LEAR				0732.0	0732.5	1				III
			LEAR				0745.6	0801.6	1				G
			LEAR				0813.8	0814.3	1				III
			LEAR				0904.8	0910.5	1				III
			LEAR				0936.8	0937.6	1				III
	0740	1500	BLEN				0936.9	0938.2	2				III
			LEAR				1002.1	1003.6	1				III
			BLEN				1002.2	1006.8	3				IIIG
			BLEN	1005.6	1005.9	2							IIIG
			BLEN				1158.2	1200.6	2				IIIG
	1049	1452	WEIS				1233.5	1236.3	3				IIIG
			WEIS				1239.4	1241.1	3				IIIG
			WEIS				1348.2	1348.4	1				IIIB
			WEIS				1429.6	1429.9	1				IIIB
	1357	2340	HARV				1446.0	1450.0	2				IIIGG
			WEIS				1446.2	1446.3	1				IIIB
			WEIS				1448.6	1449.9	1				IIIG
			HARV				1537.0		2				IIIB
			HARV				1643.0	1647.0	2				IIIG
			HARV				1653.0	1655.0	2				IIIG
			HARV				1711.0	1714.0	2	1713.0	1714.0	1	IIIG
			HARV				1746.0	1747.0	2				IIIG
			HARV				1814.0	1815.0	1	1814.0	1815.0	1	IIIGW
			HARV				1854.0	1855.0	3	1854.0	1855.0	2	IIIGG
			SGMR				1854.5	1854.6	1				III
			HARV				1929.0	1930.0	1				IIIG
			HARV				2000.0	2008.0	2	2000.0	2008.0	2	IIIGG
			SGMR				2003.6	2003.8	1				III
			HARV	2026.0		1							IIIB
	2020	2400	CULG				2026.5	2348.0	1				IIIN
			HARV				2051.0	2052.0	2				IIIG
			CULG				2207.0	2218.0	2				UNCLF
29	0000	0720	CULG	0008.0	0707.0	1							IN
			CULG	0024.5	0025.0	1	0024.5	0025.0	2				IIIG
			CULG				0035.0	0035.5	3	0035.5		1	IIIB
			LEAR				0035.5	0035.8	2				III
			CULG				0136.5	0307.0	1				IIIN
			LEAR				0351.3	0351.6	1				III
			CULG				0351.5		2				IIIB
			CULG	0635.0		2	0635.0		2				IIIG
			CULG	0711.0	0713.0	1							DCIM
	0740	1500	BLEN										
			LEAR				0754.0	0757.0	1				III
	0731	1026	WEIS				0754.6	0755.7	1				IIIG
			LEAR				0846.1	0846.8	1				III
			WEIS				0846.2	0846.6	1				IIIG
			WEIS				1018.3	1018.4	1				IIIB
			WEIS				1020.2	1020.3	2				IIIB
			WEIS				1023.0	1023.5	1				IIIG
	1357	2340	HARV				1435.0	1436.0	2				IIIG
	1039	1451	WEIS				1435.5	1436.1	1				IIIG
			SGMR				1435.6	1438.1	1				V
			HARV				1604.0	1612.0	1				IN
			SGMR				1742.1	1743.0	1				V
			HARV	1744.0	1746.0	1	1742.0	1745.0	2	1742.0	1744.0	2	IIIGG

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29			HARV	1939.0	2021.0	1							I
	2020	2400	CULG				2055.0	2258.0	1				IIIN
			HARV				2107.0		1				IIIG
			HARV				2121.0		2				IIIG
			HARV	2125.0	2240.0	2							I
			HARV				2132.0		1				IIIBW
			CULG	2151.0	2400.0	1							IS
			LEAR				2253.5	2254.0	1				III
			LEAR				2301.5	2339.1	1				III
			LEAR				2322.8	2324.5	1				III
			CULG	2323.0	2324.0	2	2323.0	2324.5	3				IIIG,V
			HARV	2323.0	2324.0	2	2323.0	2326.0	2				IIIGG
			CULG				2328.0	2400.0	1				IS,C,DC
			HARV				2328.0	2329.0	2				UNCL
			CULG				2331.0	2337.0	2				IIIS
			HARV				2331.0	2334.0	3				IIIGG
			CULG				2331.5	2337.5	3				POSS II
			LEAR				2331.5	2339.1	1				III
			LEAR				2353.6	2359.5	1				III
30	0000	0720	CULG	0000.0	0132.5	1	0000.0	0040.0	1				IS,C,DC
			CULG				0017.0	0658.5	1				IIIN
			LEAR				0022.0	0106.6	1				CONT
			CULG				0103.0	0103.5	3				IIIB
			CULG				0106.0	0106.5	2				IIIG
			CULG	0132.5	0613.5	1							IN
			LEAR				0208.5	0209.0	1				III
			CULG				0319.5	0321.0	3	0320.0	0321.5	2	IIIG,V
			LEAR				0319.5	0321.3	2				V
			LEAR				0329.3	0329.6	1				III
			CULG				0329.5		2				IIIB
			LEAR				0451.3	0452.1	1				III
			CULG				0525.5	0526.0	2				DC
			LEAR				0543.5	0543.8	1				III
			LEAR				0612.3	0623.3	1				G
			CULG				0612.5	0623.0	2				IIIN
			CULG	0613.5	0720.0	1							IS
			LEAR				0657.6	0700.6	1				III
			LEAR				0721.1	0721.3	1				III
			LEAR				0735.5	0751.5	2				G
			WEIS				0736.0	0842.0	2				CONT
			WEIS				0736.0	1328.0	2				IS
	0732	1450	WEIS				0745.9	0747.0	3				IIIG,U
			WEIS				0750.0	0751.1	3				IIIG
			LEAR				0800.6	0800.8	1				III
	0740	1500	BLEN				0820.1	1500.0D	2				I,DC,N
			LEAR				0830.3	0830.5	1				III
			LEAR				0848.0	0905.0	1				CONT
			WEIS				0848.8	0850.3	2				IIIG,U
			WEIS				0856.8	0857.0	2				IIIG
			WEIS				0937.6	0938.7	1				IIIG
			WEIS				0944.2	0945.2	2				IIIG,U
			BLEN				1033.0	1033.9	2				IIIG
			WEIS				1033.0	1034.0	2				IIIG
			WEIS				1039.2	1039.9	1				IIIG
			WEIS	1212.2	1212.5	1	1212.21	1	1				IIIG
	1357	2340	HARV				1357.0	1534.0	2				I
			HARV				1431.0	2304.0	2	1518.0	1848.0	2	IIIN
			BLEN				1443.3	1448.1	2				IIIG
			WEIS				1443.41	1443.82	2				IIIB
			WEIS				1447.5	1448.3	2				IIIG
			HARV	1448.0		2	1443.0	1448.0	2				IIIGG
			HARV				1513.0	1514.0	2				IIIG
			HARV				1534.0	1611.0	3				IC
			HARV				1558.0		2	1558.0		1	IIIG
			HARV				1611.0	2332.0	2				IC
			HARV	1616.0	1642.0	1							INW
			HARV				1839.0	1845.0	2				IIIG
	2020	2400	CULG	2020.5	2355.0	1	2020.5	2400.0	1				IS,DC
			CULG				2024.0	2344.0	1				IIIN
			CULG				2127.5		2				IIIG

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

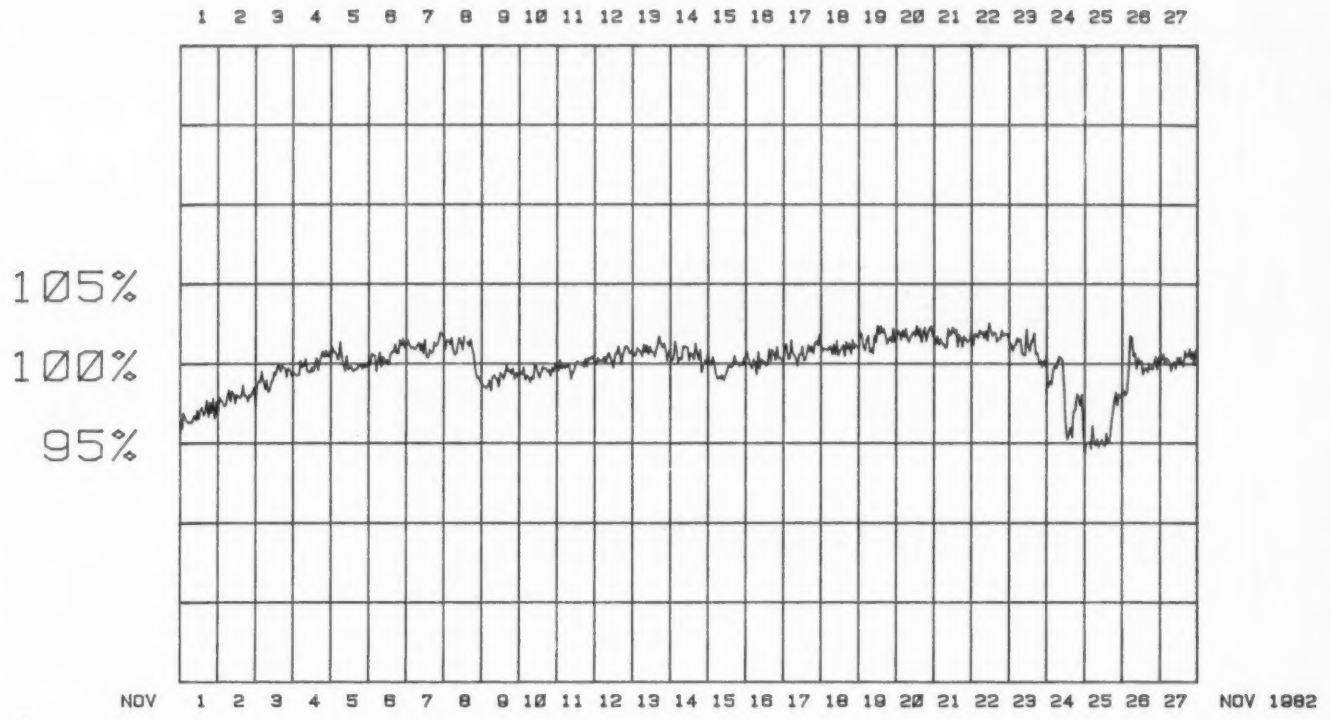
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

C O S M I C R A Y I N D I C E S
(Neutron Monitors)
November 1982

Nov 1982	THULE Average (cts/h)/100	KIEL Average (cts/h)/100	TOKYO Average (cts/h)/100
1	3765	5240.5	3421.0
2	3807	5321.7	3458.3
3	3858	5373.0	3484.0
4	3887	5433.9	3476.6
5	3891	5440.5	3474.3
6	3911	5456.7	3488.6
7	3933	5474.9	3486.1
8	3917	5438.2	3472.0
9	3855	5361.1	3445.5
10	3868	5361.0	3445.8
11	3886	5392.2	3458.8
12	3908	5438.1	3480.2
13	3922	5464.4	3487.2
14	3909	5479.2	3484.0
15	3880	5433.8	3469.1
16	3899	5418.4	3468.2
17	3920	5422.3	3470.9
18	3927	5440.5	3494.6
19	3950	5473.9	3502.8
20	3962	5488.7	3508.4
21	3950	5499.3	3511.2
22	3959	5499.3	3515.5
23	3924	5476.5	3507.2
24	3806	5309.7	3448.5
25	3730	5188.7	3433.7
26	3885	5385.2	3468.7
27	3901	5440.1	3492.0
28	3893	5413.7	3494.1
29	3877	5420.4	3479.7
30	3908	5425.5	3445.5
MEAN	3890	5413.7	3475.8

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

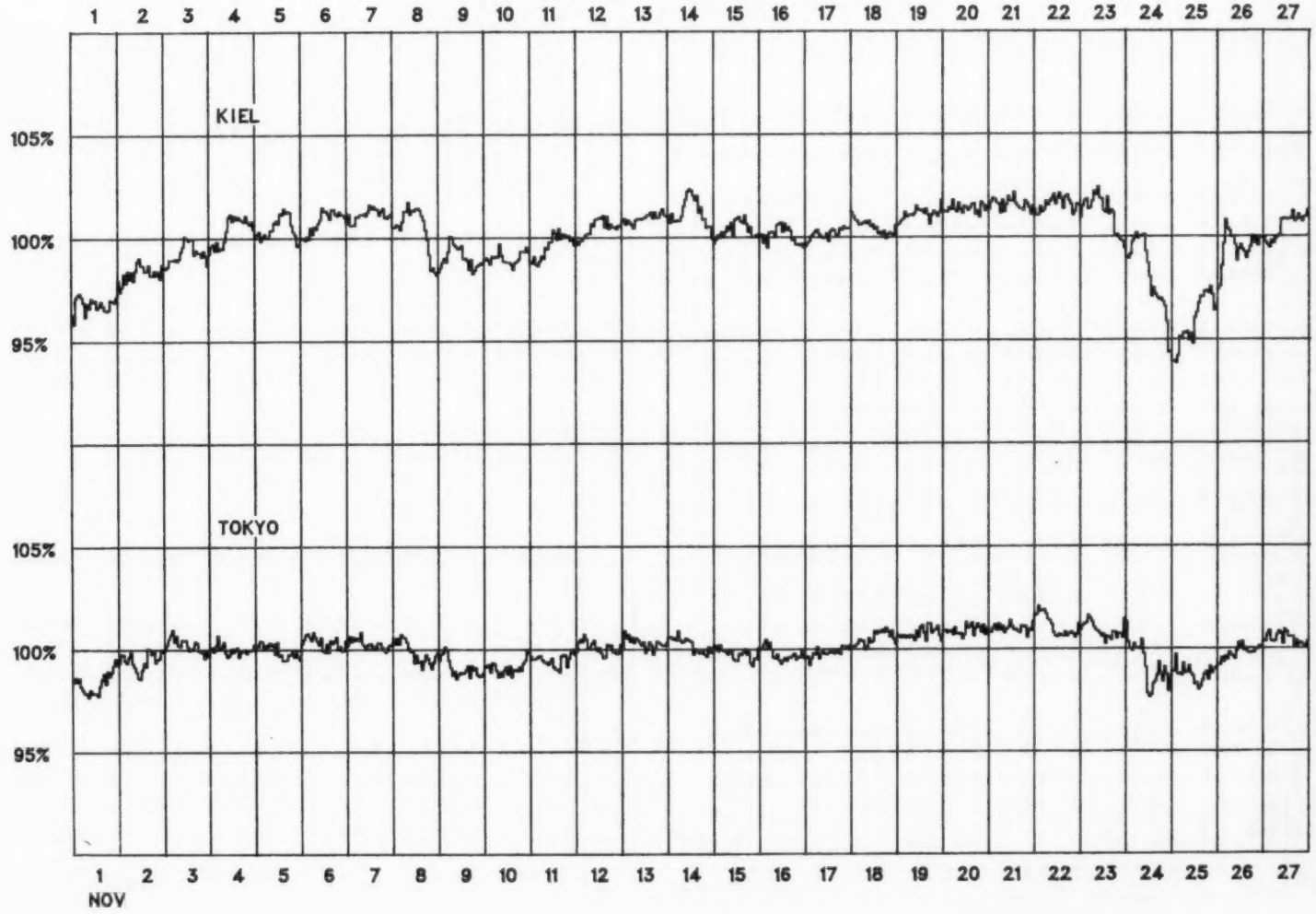
THULE NEUTRON MONITOR



BARTELS ROTATION 2040

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2040 (November 1982)



GEOMAGNETIC ACTIVITY INDICES

NOVEMBER 1982

Day	K_p Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	A_p	C_p	K_m Three-Hourly Indices 1	2	3	4	5	6	7	8	A_m	aa N	S	M	
1	D3	6	4-	4-	4-	4+	5	5	3	34+	36	1.4	5+	3-	3	4-	4+	4+	4+	3	55	54	47	49	52	
2	D4	3+	3-	3	4-	4	6-	5	5	32+	32	1.3	3	2+	3-	3+	4-	5	4+	4+	47	52	40	25	67	
3		5-	5-	4+	4+	4-	1	0	0	23-	21	1.1	4-	3+	4-	4+	3+	1	0	0+	30	27	27	45	9	
4	Q5A	0+	1	2+	2	2+	3-	3-	2-	15	8	0.4	0+	1	2+	3-	3	3-	3-	2-	17	15	20	12	23	
5	Q7A	3-	1+	1+	2+	3-	2+	3	1	17-	9	0.5	2	1	1+	2+	3	2+	3	1	18	21	20	14	26	
6	Q0A	2+	3-	4	3	2	3-	1+	1-	19-	11	0.6	2-	2	3+	3-	2	3-	1+	1+	18	19	19	23	15	
7	Q1	1+	1+	1	1-	1-	0+	1	1	7+	4	0.1	1+	1+	1	1-	1	0+	1	1+	7	6	8	9	7	CC
8		1+	1	2-	2-	2+	4	4+	2+	19-	12	0.7	1	1	2+	2-	2	4	4	3-	24	25	21	11	36	
9	Q4A	3-	3-	2+	2-	2-	1+	2-	2-	16-	8	0.4	3-	3-	2+	2-	2	1+	2	2+	18	13	22	20	15	
10	Q9A	3-	2	2-	3-	3	2+	3	3	20+	11	0.7	3	2+	2-	2+	3	3-	3	3	23	22	24	15	31	
11		4+	4	3-	4-	3+	3+	3-	4-	28-	20	1.0	4-	3+	3-	4-	3+	3	3-	3	33	31	36	32	34	
12		4	3-	2+	4-	3+	3-	3	3-	24+	16	0.9	3+	3-	2	3+	3+	3	3+	3-	29	31	30	30	31	
13		4+	4-	2	4	2	3-	4	2	25-	18	1.0	4+	3	2-	4	2	3-	4-	2	32	38	29	37	30	
14		2+	2	3-	3+	3+	3	2	3-	21+	12	0.7	2+	2-	3-	3+	3+	3	3-	3-	25	24	19	21	23	
15		2	2+	1	4-	3-	3+	3	3	21	13	0.7	2	2	2-	3	3-	3+	3	3-	23	26	19	17	29	
16	Q6A	2+	2+	3-	3-	1	0+	2-	3	16	9	0.5	2	2	3-	2+	1	0+	2	3-	16	15	13	17	12	
17	Q2K	1+	1-	1-	0+	1-	2-	3-	3-	11-	6	0.3	1+	1	1	1-	1	2	3-	3	13	13	11	7	18	K
18		2+	3+	2+	2+	3+	3+	2-	3-	21+	12	0.7	2+	3-	3-	2+	4-	3	2-	3-	25	24	26	22	28	
19	Q8A	3	3-	1-	1	2	2+	3	3+	18	10	0.6	2	2	1	1+	2	3-	3	3	17	24	12	11	26	
20	Q3K	1+	1-	0+	1+	1+	1-	3-	3	11+	6	0.3	1+	1+	0+	2-	1+	0+	3-	3-	12	16	14	10	21	
21		4-	4+	4-	3+	3+	3+	4+	5-	31-	25	1.2	3-	3+	3+	3+	3+	3+	4-	4+	42	47	41	41	47	
22		6+	6	5-	3	1	1+	1+	0+	24	30	1.3	6-	4+	4+	3	1+	1+	2-	0+	40	43	15	53	5	
23		0	1-	1+	3+	3+	6+	6+	5+	27-	36	1.4	0+	1	1+	3	4-	6-	6-	6-	62	64	58	12	111	
24	D1	3+	3-	3	6-	7+	7	7+	7-	43	83	1.8	3+	3	2+	5-	8-	6+	6+	6	133	113	125	51	186	
25	D2	7-	5+	6-	6-	5+	4+	4-	3+	40	54	1.6	6	5-	5+	5	5-	4-	4-	3+	79	74	76	92	59	
26		3	4	4+	4	4	4+	2	5-	30+	26	1.2	3+	4-	3+	4-	4-	4+	3-	4-	44	47	37	33	52	
27		2	3+	3+	4-	4-	3+	4-	2+	25+	17	0.9	2+	3-	3	3+	4-	4-	3+	3-	32	26	34	26	34	
28		6	4-	3	4-	3	3+	4	4-	30+	28	1.2	5+	3	3	4-	3	3+	4	3+	48	43	39	49	32	
29	D5	3+	3-	2	3+	4	5+	6	5-	31+	32	1.3	3	2+	2	3	4	5	6	4+	57	56	46	24	79	
30		4	3+	3	2-	4-	2+	1-	1-	19+	13	0.7	4	3	2+	2-	4-	2+	1	1-	23	17	22	25	14	
Total											21	0.88									34.7	34.3	31.6	33.0	

Day	K_n Three-Hourly Indices 1	2	3	4	5	6	7	8	A_n	K_s Three-Hourly Indices 1	2	3	4	5	6	7	8	A_s
1	5+	3-	3	4-	4+	4+	4+	3	55	6-	3-	3	4-	4	5-	4+	3	56
2	3	2+	3	3+	4	5-	4+	4+	47	3	2	3-	3+	3+	5	4+	4+	47
3	4	3+	4-	4	3+	1+	0	0+	30	3+	3+	3+	5-	3+	1-	0+	0+	29
4	0+	1	2+	3-	3+	3	3-	2	19	0+	1+	2	2+	3-	3-	3-	2-	16
5	2-	1-	1+	3-	3	3-	3	1+	17	2+	1	1+	2+	3	2+	3	1-	18
6	2-	2+	3+	3-	2	3	1	1	18	2-	2-	3	3-	2+	2	1+	1+	17
7	1+	1+	1	0+	1	0	1	1	6	2-	1+	1+	1-	1	1-	1	1+	8
8	1	1-	2	1+	2	4	4+	2+	24	1+	1+	2+	2	2	4-	4	3-	24
9	2+	3-	2	1+	2	1+	2-	2	15	3	3	3-	2	2	1+	2+	3-	21
10	3-	2-	2-	2+	3	2+	3	3	22	3+	3-	2-	2	3	3-	3	3	25
11	3+	3+	2	3+	3+	3	3-	3	31	4-	3+	3	4	3+	3	3-	3	35
12	4-	2+	2-	3+	3+	3	3	3-	29	3+	3-	2+	3+	3	3	3+	3	30
13	4	3-	2-	4+	2	3-	4-	2-	32	4+	3	2	4-	2	3-	4-	2+	32
14	2	1+	3-	3+	3	3	2+	3-	23	3-	2	3-	4-	3+	3	3-	2+	27
15	2	2-	1+	3	3-	3+	3	3-	22	2	2	2-	3	3-	3+	3	2+	23
16	2	2-	3-	2+	1-	0+	2-	3-	14	2	2+	3-	2+	1+	1-	2+	3	18
17	1	0+	1-	0+	1	2	3	3	12	1+	2-	1	1	1	2+	3-	3-	13
18	2-	3-	2+	2	4	3+	2-	3-	24	3-	3	3-	2+	4-	3-	2	2+	25
19	2+	2	1-	1	2-	3-	3	3	17	2	2	1	1+	2+	3-	3-	3-	17
20	1+	1-	0	1+	1+	0+	3-	3-	18	2-	2	1	2	1+	1-	3	3-	14
21	3-	3-	3	3+	3+	4-	4	4+	39	3	4	4-	3+	3+	3+	4-	4	44
22	5+	4+	5-	3	2-	1+	2-	0	39	6-	5-	4	3-	1+	2-	2-	1-	41
23	0	0+	1+	3	3+	6	5+	5	56	1-	1+	1+	3+	4-	5+	6	6	69
24	3	2+	3-	5-	8	6+	6+	6-	132	4-	3+	2	5	7+	7-	6+	6+	135
25	5+	4+	5+	5+	5-	4-	4-	3+	76	6+	5-	5	5	5-	4-	3+	3+	81
26	3-	3+	4-	4-	4	5-	2	4	43	4	4	3+	3+	4-	4-	3	4-	44
27	2-	3	3	3	4	4-	3+	2+	32	3-	3-	3	3+	3+	4-	3+	3-	31
28	5+	3	3-	4-	3+	4-	4	3+	48	6-	3	3+	3+	3	3	4-	4-	47
29	3	2+	2-	3	4+	5	5+	4-	52	3+	2+	2+	3	3+	5	6+	5-	63
30	3+	3	2	1+	4-	2	1-	0+	19	4+	3	3-	2	4-	3-	1+	1+	28
									33.4									35.9

The Geophysikalisches Institut, University of Goettingen, prepares the quiet (Q) and disturbed (D) days, geomagnetic planetary 3-hour-range indices (Kp), magnetic character figures (Cp) and average amplitude (Ap). The 10 most quiet days [Q1-Q0(10)] and the five most disturbed days (D1-D5) are ordered from most quiet and from most disturbed, respectively. A or K means "not really quiet" (A implies Ap>6 and K implies Ap<6 with either one Kp>30 or two Kp values >3-). An asterisk means "not really disturbed" (Ap<20).

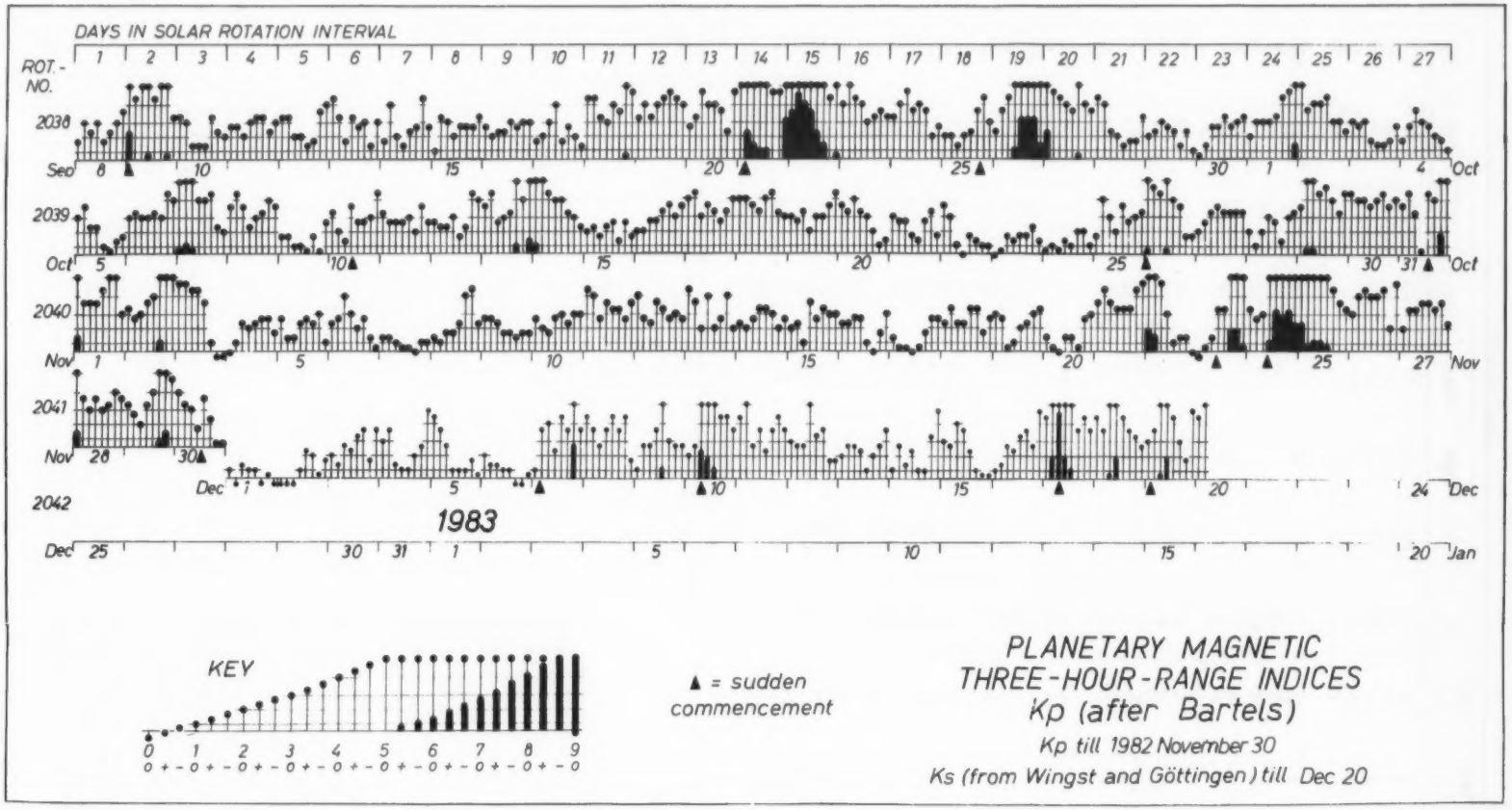
Geomagnetic 3-hour indices Km, Kn, Ks and daily mean values Am, An, As and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices, daily north (N) and south (S) values and half-daily antipodal mean (M) values are given. C indicates really quiet 24- and 48-hour intervals centered on 1200 UT; K indicates similar periods with some slightly disturbed 3-hour intervals.

NOTE: All aa indices are provisional from 1 January 1981 until further notice, because of the change in the Southern Hemisphere observatory.

DAILY AVERAGE INDICES Ap

DAY	1981 DEC	1982 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	6	9	41	68	20	22	20	18	12	9	28	36
2	9	9	60	107	42	30	18	10	55	12	24	32
3	8	20	35	13	48	45	9	6	26	21	10	21
4	10	12	49	12	22	19	7	2	15	32	10	8
5	9	4	37	16	21	14	6	4	18	39	9	9
6	4	10	39	3	18	6	14	15	25	199	19	11
7	3	12	26	3	5	4	14	21	107	88	35	4
8	15	9	18	11	12	5	9	15	6	12	21	12
9	10	4	15	20	10	8	16	10	23	50	6	8
10	9	4	35	16	61	5	51	10	27	10	15	11
11	6	5	45	10	47	9	32	36	28	13	14	20
12	23	2	41	8	15	6	59	48	22	14	15	16
13	12	4	54	13	11	6	62	144	10	15	34	18
14	6	3	42	11	6	8	24	153	7	14	30	12
15	6	12	18	7	10	20	26	36	3	12	8	13
16	4	17	6	4	11	10	10	50	6	12	14	9
17	7	10	30	14	19	12	6	24	16	11	21	6
18	14	13	34	20	12	20	7	24	16	30	23	12
19	10	3	36	10	8	12	24	28	10	28	17	10
20	6	6	26	12	20	8	18	24	12	24	14	6
21	6	14	21	23	32	8	9	11	15	76	11	25
22	3	27	51	38	18	4	20	16	24	135	8	30
23	6	22	29	8	9	2	20	12	17	26	5	36
24	10	21	24	12	15	4	21	50	18	22	5	83
25	8	9	42	20	52	8	17	22	20	13	15	54
26	6	7	43	11	7	24	16	27	20	84	30	26
27	6	13	12	9	24	54	32	27	11	42	16	17
28	12	17	10	6	21	56	27	21	12	14	10	28
29	32	11		13	31	35	19	22	38	9	35	32
30	30	27		15	30	35	39	23	28	12	27	13
31	18	34		20		31		25	16		34	
Mean	10	12	33	18	22	17	22	30	21	36	18	21

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

NOVEMBER 1982

Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	Ranges K	D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
SIT	60.0N	01	0849	SC*	- 16 *	63 *	13 *	03(3)	7	--	--	530	03	14
IRK	41.0N	01	1200	..	..	..	..	01(7,8) 02(5)	5	20	99	45	02	22
HER	33.7S	01	17--	..	..	..	..	01(7)	5	6	73	62	01	22
HYB	07.6N	02	0500	..	..	..	..	02(6)	5	4	166	22	03	17
HUA	00.6S	02	0211	..	..	..	..	02(6)	6	13	351	46	03	13
HER	33.7S	02	16--	..	..	..	..	02(8)	5	23	80	100	03	14
KGL	56.5S	02	1500	..	..	..	..	02(6)	8	100	674	488	03	16
IRK	41.0N	05	2300	..	..	..	..	06(7,8) 07(4,5,6)	5	20	142	56	07	21
JAI	17.3N	08	0700	..	..	..	..		-	3	95	25	10	03
SHL	14.7N	08	0700	..	..	..	..		-	3	87	26	10	03
UJJ	13.5N	08	0700	..	..	..	..		-	3	100	22	10	03
ABG	09.5N	08	0700	..	..	..	..	08(6)	5	3	116	23	10	03
HYB	07.6N	08	0800	SC	0	14	- 1	08(6,7)	5	3	112	16	10	07
ANN	01.5N	08	0700	..	..	..	..		-	4	124	32	10	03
HUA	00.6S	08	1433	SC	1	9	2	08(6,7)	6	10	393	56	09	23
TRD	01.1S	08	0700	..	..	..	..		-	4	151	95	10	03
HER	33.7S	08	14--	..	..	..	..	08(6)	5	16	78	107	08	21
HYB	07.6N	10	1000	..	..	..	..	11(4,5,6,8)	4	3	115	26	13	21
GUA	04.0N	11	0946	..	..	..	..	11(4)	5	--	50	--	11	19
HUA	00.6S	11	0224	..	..	..	..	11(5,6)	6	9	205	43	11	23
HUA	00.6S	12	0108	..	..	..	..	12(6)	6	7	221	28	12	23
IRK	41.0N	13	0400	..	..	..	..	13(6)	6	22	116	51	14	21
GUA	04.0N	13	0008	..	..	..	..	13(1)	5	--	140	20	13	17
HYB	07.6N	14	0500	..	..	..	..	15(7)	4	3	115	21	15	23
HYB	07.6N	17	1400	..	..	..	..	18(6)	5	3	128	17	19	22
FRD	49.6N	20	1841	SC	1	11	- 2	22(1)	6	24	154	101	--	--
HYB	07.6N	20	1841	SC	- .1	8	- 1	21(3,6) 22(1)	4	3	148	24	22	11
HUA	00.6S	20	1841	SC	2	31	2	21(6)	6	9	252	53	22	07
KGL	56.5S	20	1841	SC				22(1)	8	72	603	454	22	12
COL	64.6N	21	04--	..	..	..	..	21(4)	6	94	970	610	22	12
WIT	54.2N	21	1600	..	..	..	..	21(7) 22(1)	6	35	135	85	22	06
GUA	04.0N	21	2005	..	..	..	..	21(8)	5	--	90	30	22	16
COL	64.6N	23	0917	SC*		109	- 29	24(5)	9	831	3290	1680	30	18
SIT	60.0N	23	0918	SC	- 3	41	6	24(5)	8	--	--	--	26	17
WIT	54.2N	23	0917	SC*	0	15 *	0	23(6)	7	47	243	98	24	02
FRD	49.6N	23	0917	SC*	2	27	- 3	25(2) 28(1)	6	44	255	160	30	18
HON	21.1N	23	0918	SC		17	5	23(8)	6	5	110	42	24	06
JAI	17.3N	23	0915	SC	- .5	14	- 4		-	14	358	50	25	19
UJJ	13.5N	23	0915	SC	- .3	15	- 3		-	11	334	37	25	19
ABG	09.5N	23	0915	SC	- .4	12	- 5	24(5)	8	12	373	47	25	19
HYB	07.6N	23	0917	SC	- .2	13	- 2	23(6,7)	6	3	167	13	24	06
GUA	04.0N	23	0917	SC		11	- 3	23(8)	7	10	150	70	24	08
HUA	00.6S	23	0917	SC	1	12	2	23(6)	8	12	471	52	24	05
TRD	01.1S	23	0915	SC	.1	25	26		-	--	--	--	25	19
PMG	18.6S	23	0917	SC	.5	23	21	24(5,8)	7	--	--	--	--	--
HER	33.7S	23	09--	..	..	..	..	23(6,8)	6	31	136	137	24	06
GNA	43.2S	23	0917	SC*	1.6*	16 *	5 *	23(8)	7	28	120	120	24	09
CNB	43.9S	23	0916	SC*	- 2.0*	28 *	7	23(8)	6	24	165	75	24	06
KGL	56.5S	23	0916	SC	7	37	11	23(7)	8	84	717	332	--	--
WIT	54.2N	24	0922	SC*	15	62	3	24(6,7)	7	62	270	345	25	19
HON	21.1N	24	0921	SC	1	28	9	24(5)	7	10	176	38	25	16
HYB	07.6N	24	0922	SC	- 1.1	59	- 5	24(5,6)	8	9	368	30	26	23
GUA	04.0N	24	0921	SC	1	46	- 13	24(5)	7	--	240	60	25	23
HUA	00.6S	24	0921	SC	1	54	7	24(5)	9	16	568	52	25	15
HER	33.7S	24	0922	SC	2	56	33	24(5)	7	59	231	290	25	19
GNA	43.2S	24	0922	SC	8.7	92	41	24(6)	7	47	230	230	28	09
CNB	43.9S	24	0920	SC	- 1.7	75 *	9	24(5)	7	39	290	120	28	13
KGL	56.5S	24	0921	SC	17	300	80	24(5,8)	9	212	1688	644	25	12

PRINCIPAL MAGNETIC STORMS

NOVEMBER 1982

Sta	Geomag Lat	Commencement Day	Time (UT)	Type	SC Amplitudes D (Min)	H (Gamma)	Z (Gamma)	Maximum 3-Hour K Index Day(3-Hour Periods)	K	Ranges D (Min)	H (Gamma)	Z (Gamma)	End Day	Hour (UT)
HYB	07.6N	27	0700	..	..	..	..	27(6,7) 28(1)	4	3	122	27	28	23
GUA	04.0N	28	0023	..	..	..	..	28(1)	5	--	130	30	28	15
HER	33.7S	28	00--	..	..	..	..	28(1)	5	22	75	75	28	04
JAI	17.3N	29	0900	..	..	..	..		-	6	88	29	30	17
UJJ	13.5N	29	0900	..	..	..	..		-	5	92	25	30	17
ABG	09.5N	29	0900	..	..	..	..	29(7)	6	5	96	33	30	17
HYB	07.6N	29	0900	..	..	..	..	29(7)	6	4	103	20	30	19
GUA	04.0N	29	1106	..	..	..	..	30(1)	6	--	140	30	30	08
HUA	00.6S	29	1113	..	..	..	..	29(6,7)	7	12	345	33	30	20
TRD	01.1S	29	0900	..	..	..	..		-	5	131	97	30	17
PMG	18.6S	29	10--	..	..	..	..	29(7)	6	10	120	50	30	09
HER	33.7S	29	09--	..	..	..	..	29(6)	5	24	121	138	30	04
CNB	43.9S	29	10--	..	..	..	..	29(7)	5	20	110	60	30	06
KGL	56.5S	29	1600	..	..	..	..	29(7)	9	73	1151	207	30	09

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR CANBERRA COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS
HONOLULU HUANCAYO HYDERABAD IRKUTSK JAIPUR KERGUELEN PORT MORESBY SHILLONG
SITKA TRIVANDRUM UJJAIN WITTEVEEN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

NOVEMBER 1982

PRELIMINARY REPORT ON RAPID VARIATIONS

Sudden Commencements (ssc)

20 18 41 B: WNG FRD; C: MMB TOL KNY KGL (si: C: MPO)

23 09 17 A: SOD DOU FRD MPO; B: WNG AQU EBR TOL KNY LNP GNA AMS KGL DUM; C: WIT NGK HAD CLF MMB KAK HTY CZT

24 09 22 A: WNG HAD CLF MMB AQU EBR COI KAK HTY KNY AMS CZT KGL DUM; B: SOD WIT NGK DOU TOL MPO GNA

30 12 11 B: WNG DOU AQU MPO; C: WIT CLF TOL (si: A: AMS CZT)

Solar Flare Effects (sfe)

8 12 14 - 12 43 SOD

12 03 35 - 04 03 MMB

13 00 06 - 00 20 KAK HTY KNY

13 06 03 - 06 30 KNY

14 00 15 - 00 40 KAK KNY

15 01 58 - 02 45 MMB KAK HTY KNY LNP

16 03 34 - 03 50 MMB KAK

20 05 29 - 06 16 KAK HTY KNY

22 12 24 - 12 30 MPO

25 04 17 - 04 21 LNP

26 02 35 - 05 05 LNP

RADIO PROPAGATION QUALITY INDICES

November 1982

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	4.1	4.3	0.0	4.1	3.8
2	5.2	4.7	0.7	5.5	5.7
3	4.5	5.7	2.8	3.8	3.3
4	6.1	5.6	3.1	5.6	4.8
5	5.6	4.9	2.9	5.6	4.7
6	5.4	5.0	2.6	5.5	5.4
7	5.4	5.4	2.3	5.6	4.7
8	5.5	6.5	6.8	6.0	6.5
9	6.2	7.5	5.0	5.9	5.8
10	6.2	6.0	2.8	5.9	5.3
11	5.1	6.0	3.4	6.5	5.9
12	4.8	6.2	4.6	6.1	4.5
13	5.8	5.9	1.0	5.7	4.2
14	4.5	6.6	2.6	6.1	4.7
15	4.9	5.7	0.8	5.8	4.7
16	3.6	5.1	1.6	5.2	3.7
17	5.4	6.2	0.6	5.8	5.6
18	5.1	7.8	0.0	5.3	6.4
19	4.8	6.5	1.4	5.4	6.4
20	4.9	6.4	1.2	5.8	4.1
21	4.7	5.5	3.6	7.1	7.2
22	2.8	3.6	3.0	2.7	0.9
23	4.3	4.9	6.5	6.1	4.9
24	3.4	2.8	0.3	5.5	3.9
25	4.1	4.0	5.2	5.6	5.0
26	4.9	4.1	0.0	4.6	4.3
27	5.2	3.4	0.0	4.6	4.5
28	5.7	4.2	0.5	5.3	4.4
29	5.0	5.1	0.0	5.8	5.8
30	3.2	5.9	3.5	3.6	2.5
MEAN	4.9	5.4	2.3	5.4	4.8

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

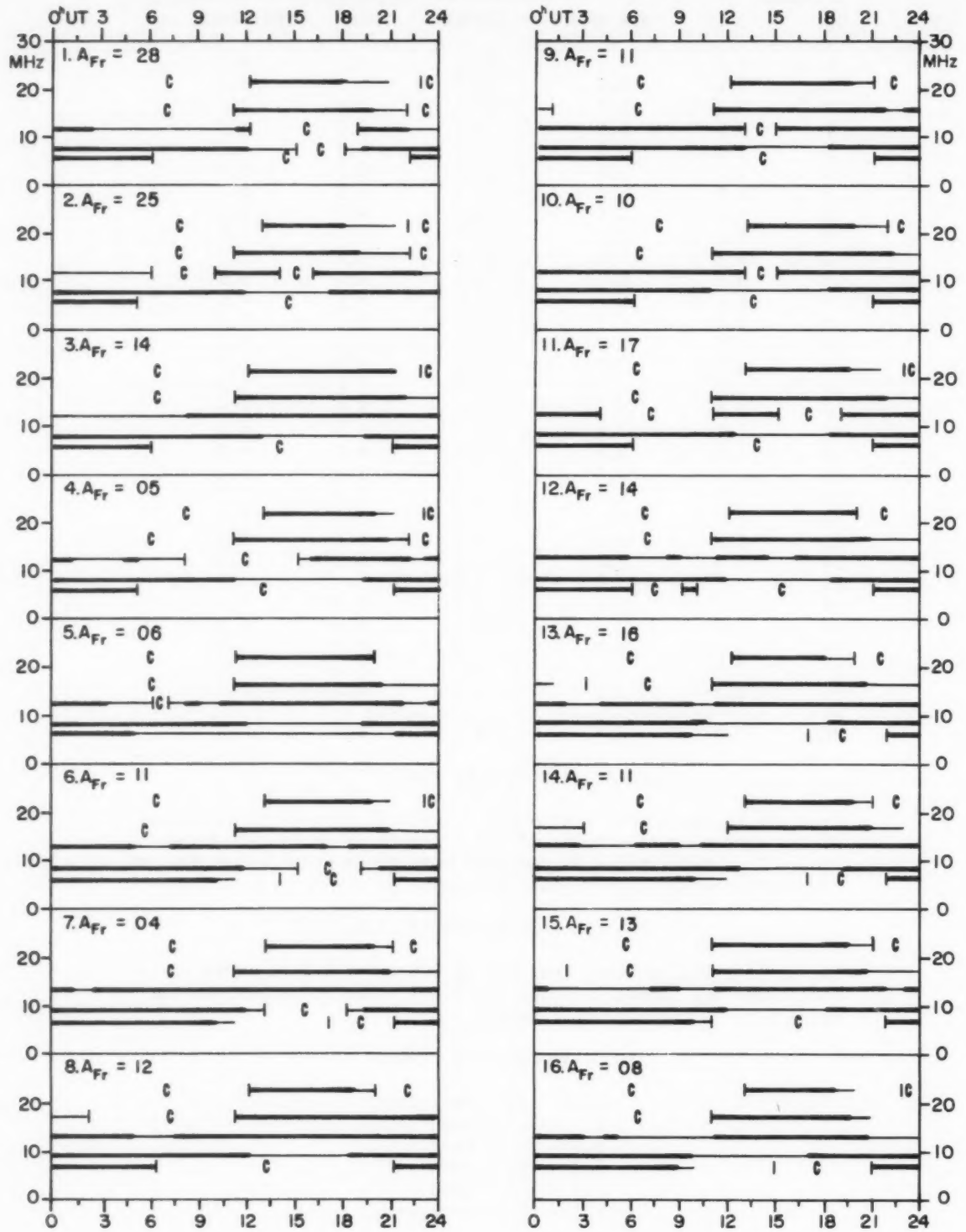
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

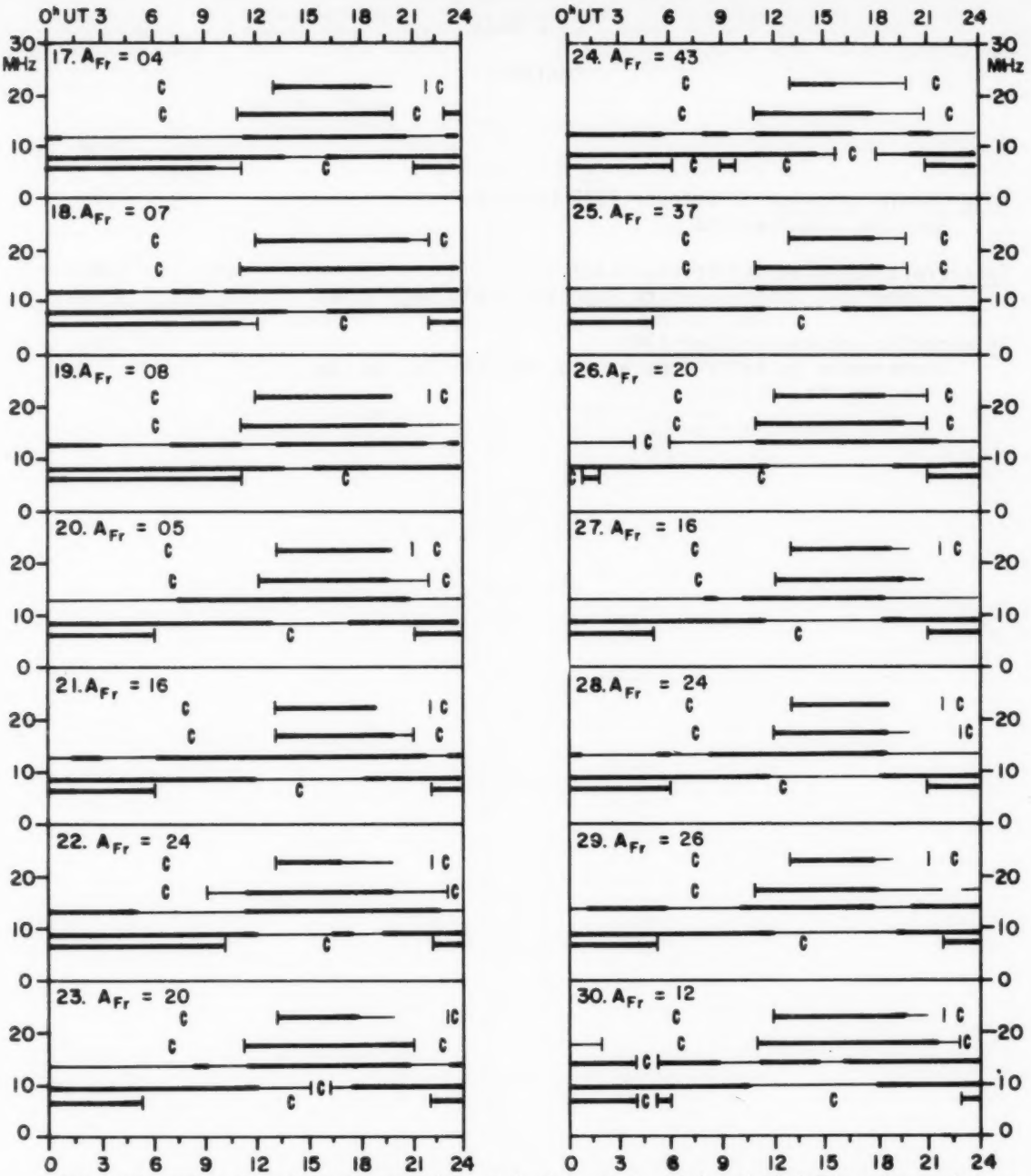
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1982



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1982



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Norddeich -New York circuit are represented above. Heavy solid lines represent field strengths ≥ -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

SGD 461 Part I (Prompt)

LATE DATA

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Geomagnetic Activity Indices (Kp, Ap, Cp, Km, Am, aa, Kn, An, Ks, As)

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1982

Day	Observation Start (UT)	Observation End (UT)	Sta	Decimetric Band Start (UT)	Decimetric Band End (UT)	Decimetric Band Int (1-3)	Metric Band Start (UT)	Metric Band End (UT)	Metric Band Int (1-3)	Dekametric Band Start (UT)	Dekametric Band End (UT)	Dekametric Band Int (1-3)	Spectral Type
31	0000	0715	CULG	0040.5	0327.0	1							IN
			CULG	0327.0	0714.5	1							IS
	2015	2400	CULG	2015.5	2351.5	1	2042.0	2327.5	1				IS
			CULG				2132.5		1				IIIB
			CULG				2140.0	2143.0	1				CONT
			CULG				2142.0	2142.5	2				IIIG
			CULG				2201.0	2253.0	2				IS
			CULG	2211.5	2212.0	1							DCIM

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

P I O N E E R X I I
(VENUS ORBITER)
INTERPLANETARY MAGNETIC FIELD
MAGNITUDES

October 1982

DAY	TIME	BMAG (GAMMAS)
1	13:33:10	15.45
2	13:32:40	12.68
3	13:30:50	8.59
4	14:10:40	7.64
5	14:16:00	17.28
6	13:33:20	10.59
7	20:52:00	12.65
8	14:20:40	10.96
9	13:33:10	10.77
10	13:36:50	9.40
11	13:33:00	14.83
12	17:13:20	12.76
13	13:49:50	11.48
14	15:17:20	11.88
15	13:33:10	36.68
16	13:32:00	11.42
17	21:31:50	9.69
18	15:22:10	11.13
19	21:01:40	10.02
20	---	---
21	---	---
22	---	---
23	---	---
24	---	---
25	---	---
26	---	---
27	---	---
28	---	---
29	---	---
30	---	---
31	---	---

GEOMAGNETIC ACTIVITY INDICES

OCTOBER 1982

Day		K_p Three-Hourly Indices 1	2	3	4	5	6	7	8	Sum	A_p	C_p	K_m Three-Hourly Indices 1	2	3	4	5	6	7	8	A_m	aa N	S	M	
1		2	3	3	3	3+	4+	5-	6	29+	28	1.2	1+	2+	3-	3-	3-	4	4+	4+	36	38	36	21	53	
2		5	4-	4	4	4+	3	3	2+	29+	24	1.2	4-	3-	3+	4-	4-	3	3-	2+	36	33	28	32	29	
3	Q7A	3	3-	3	2-	1+	1+	2-	3-	17+	10	0.5	2+	2-	2	2	2-	2	2	2+	15	20	12	16	16	
4	Q9A	2-	3-	4-	3	3-	2	2-	1	18+	10	0.6	1+	2+	3	3	3-	2	2-	1-	18	11	22	19	14	
5	Q6A	3	4-	2+	2+	1	1-	1+	2-	16	9	0.5	2+	3	2+	1+	1	1-	2	2-	14	20	14	23	12	
6		3	3+	3	3	3+	3	4+	4	27	19	1.0	2+	2+	3-	3	3	3+	4	4-	33	32	27	21	39	
7	D2	5+	6-	5+	4	4	4+	2+	2	33	35	1.4	4+	4-	4	4-	4-	4-	2	2	43	50	34	53	31	
8		4-	4+	4-	2+	3	3+	4	4-	28	21	1.1	3+	4-	3	3-	3-	3+	3+	3	33	41	25	30	36	
9	Q3	2-	2-	1	1	1-	2-	1-	3-	11	6	0.2	1+	1	0	1-	1-	2-	1-	3-	8	15	5	7	14	K
10		3+	2	1+	4-	3-	3-	3	4+	23	15	0.9	3-	2-	1+	3+	2+	3-	3-	4-	23	29	18	23	25	
11		3+	3-	3-	3-	3	2	4-	3-	23-	14	0.8	3-	3-	3	2+	3-	2	3+	3-	25	29	25	26	29	
12		3-	2+	2+	3	2-	2+	4+	4	23-	15	0.8	2+	2	2+	3	1+	2+	4-	3+	24	32	24	20	37	
13	D4	4-	4+	3-	3	3+	6-	4	6	33-	34	1.3	4-	4-	2+	3-	3+	5-	4-	5	47	50	42	30	62	
14	D5	6-	5	4+	4	4	3+	3	2+	32-	30	1.3	5-	4+	4-	4	4	3	3-	3-	46	42	46	53	35	
15	Q4A	2	2+	2-	2+	3-	1+	3-	2-	17-	8	0.4	1+	2	2-	3-	2+	1+	3-	2	15	19	15	14	21	
16		2	2	3-	3-	3+	4-	3	4-	23	14	0.8	2-	2-	3-	2+	3+	3+	3	4-	28	24	29	15	38	
17		4	4+	3	4-	3+	3-	3+	4	28+	21	1.1	4-	4-	2+	3	3+	3-	3+	4-	33	35	28	33	31	
18		4	4	4-	3+	4	4+	3+	3	30-	23	1.1	3+	3+	3	3	4	4	3	3-	36	45	37	38	44	
19		3	3-	3+	2	3	3	4-	4+	25	17	0.9	3-	2	3-	2-	3-	3-	3+	4-	26	32	22	19	36	
20		4-	3+	4	3+	3	2	1	1+	22-	14	0.8	3	3	3+	3-	3	2	1+	2-	23	26	17	28	15	
21	Q0A	3	3-	3-	2-	1+	3-	3+	2-	19	11	0.6	3-	2+	2	1+	1+	3-	3	2	18	19	17	16	21	
22	Q5A	4-	3	1	0+	2-	1+	1	1	13	8	0.4	3-	2	1-	1-	2-	1+	1-	1	10	19	6	17	9	K
23	Q2	0+	1-	2-	1+	2-	2-	2+	1+	11	5	0.2	1-	1-	1+	1+	2+	2+	2	1+	10	12	11	8	16	CC
24	Q1	1-	1	1-	1+	1	2	2	1	10-	5	0.2	1-	1-	0+	2-	1	2+	2-	1+	9	8	10	6	12	CK
25		2-	4	3	2	4-	3-	3	3+	23+	15	0.9	1+	3	3-	2+	4-	3-	3	3+	26	27	24	17	34	
26		5+	5-	4+	5+	4	4-	2-	2-	31-	30	1.3	5	5-	4	5-	3	3+	2-	1+	49	45	49	72	23	
27		2	3-	3+	4-	3+	3+	3+	3+	25	16	0.9	1+	3-	3-	3	4-	3+	3	3	27	34	29	24	39	
28	Q8A	2	1	2	3	3-	1+	3	3+	18+	10	0.6	2-	1	2-	3	3-	2-	3+	3	21	20	26	16	30	
29	D1	4-	5+	5+	4+	5-	4	3+	4+	35	35	1.4	4-	5	4	4+	5	4	3	4-	62	45	49	48	46	
30		4+	4	4	4-	4	4+	4-	4	32	27	1.2	4-	4-	3+	4	4	4	3+	3+	46	45	36	38	43	
31	D3	4-	4+	3+	1-	4+	4	6+	5	32-	34	1.4	3	3+	3-	1-	4-	4-	6-	5-	49	64	31	23	73	
Total											18	.87									28.7	31.1	25.7	28.5		

Day	K_n Three-Hourly Indices 1	2	3	4	5	6	7	8	A_n	K_s Three-Hourly Indices 1	2	3	4	5	6	7	8	A_s
1	2-	3-	3-	3-	3-	4	4+	4+	37	1+	2	3-	3-	3-	4	4+	4+	35
2	4	3-	4-	4	4	3+	3	3-	41	4-	3-	3+	4-	4-	3-	2+	2	30
3	3-	2	2	2	2-	2	2+	2+	17	2+	2-	2	2-	2-	2-	2-	2	13
4	1	2+	3	3	3	2+	2	1-	19	1+	2+	3	3	2+	2-	1+	1	17
5	2+	3	2+	2-	1	1-	2-	2	15	2+	3	2+	1+	1+	1-	2	1+	14
6	3-	3-	2+	3-	3	3+	4	4-	32	2	2+	3	3	3	3+	4	4-	33
7	4+	4	4+	4	4	4-	2+	2	47	4+	3	4-	3+	4-	4-	2-	2+	38
8	3+	4-	3	3-	3	3+	4-	3+	36	3+	4-	3-	2+	3-	3+	3+	3	31
9	1+	1+	0+	1-	1	2-	1	3-	9	1+	1	0	1-	0+	2-	1-	2	7
10	3	2-	1+	3+	2+	3-	2+	4-	25	3-	2-	2-	3	2	2	3-	3+	21
11	3	2+	3-	3-	3	2+	3+	3-	25	2+	3	3	2+	3-	2-	3+	3-	25
12	2+	2	2+	3-	1+	3-	4-	3+	24	2+	2+	2	3	1+	2+	4-	3+	25
13	3+	4-	2+	3-	4-	5-	3+	5	47	4-	4-	2+	3-	3	5-	4-	5	47
14	5-	4+	4-	4	4+	3+	3-	3-	48	5-	4	4-	4	4	3-	2+	3-	44
15	1+	2-	2	3-	2+	1+	3-	2	16	1+	2	1+	3-	2	1+	3-	2	14
16	2-	2-	3-	2+	3	4-	3	4-	28	2-	2	3-	2+	3+	3	3	4-	28
17	4-	4-	3-	3	4-	3	3	3+	35	3+	3+	2	3	3	2	3+	4-	32
18	3+	4-	3	3	4+	4	3	3-	39	3	3	3	3	3+	4-	3	3	32
19	3-	2-	3	2-	3-	3-	3+	4-	26	3-	2	2+	1+	3-	3-	4-	4	26
20	3	3	4-	3-	3	2+	1+	2-	26	3	3	3	3-	3	2-	1	1+	21
21	3-	2+	2+	2-	1+	3-	3	2	18	3-	2	2	1+	1	3	3	2	18
22	3-	2+	1-	1-	2-	1+	1	1	10	3-	2	1	1-	1+	1+	0+	1	9
23	0+	0+	2-	1+	2+	2+	2+	1	11	1-	1	1+	1	2	2	2-	1+	9
24	1-	1-	0+	2-	1+	2+	2	1+	9	1-	1-	1-	2	1	2	2-	1+	9
25	1+	3+	3-	2+	4-	3-	3	3	27	1+	3	3-	2+	3+	3-	3-	3+	25
26	5	4+	4-	5-	3+	3+	2	1+	46	5	5-	4	5-	3	3+	2-	1+	52
27	1+	2+	3-	3	4-	3+	3	3	27	1+	3	3-	3	4-	3+	3	3	28
28	2-	1	2-	3+	3-	2	3	3	20	2	1-	1+	3	2+	1+	4-	3	21
29	3+	5+	4	4+	5+	4+	3	4	68	4	5-	4	5-	4+	4	3	3+	57
30	4-	4	3+	5-	4+	4+	4-	4-	54	4	3	3+	3+	4-	4-	3-	3	38
31	3	3+	3	0+	4	4-	6	5-	56	3-	3	3-	1-	3+	4-	5+	4	42
Total									30.3									27.1

The Geophysikalisches Institut, University of Goettingen, prepares the quiet (Q) and disturbed (D) days, geomagnetic planetary 3-hour-range indices (Kp), magnetic character figures (Cp) and average amplitude (Ap). The 10 most quiet days [Q1-Q0(10)] and the five most disturbed days (D1-D5) are ordered from most quiet and from most disturbed, respectively. A or K means "not really quiet" (A implies Ap>6 and K implies Ap<6 with either one Kp>30 or two Kp values >3-). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic 3-hour indices Km, Kn, Ks and daily mean values Am, An, As and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices, daily north (N) and south (S) values and half-daily antipodal mean (M) values are given. C indicates really quiet 24- and 48-hour intervals centered on 1200 UT; K indicates similar periods with some slightly disturbed 3-hour intervals.

NOTE: All aa indices are provisional from 1 January 1981 until further notice, because of the change in the Southern Hemisphere observatory.

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